This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

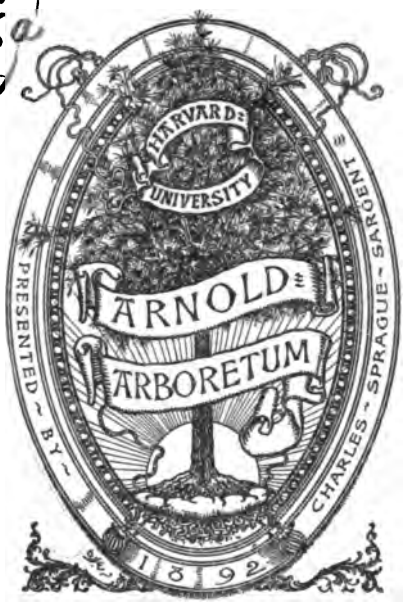
+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

Per. A
AM
6a
8


HARVARD UNIVERSITY
ARNOLD
ARBORETUM
PRESENTED BY
CHARLES SPRAGUE SARGENT
1892

The Gardener's Monthly

AND

HORTICULTURAL ADVERTISER.

DEVOTED TO HORTICULTURE, ARBORICULTURE, BOTANY AND RURAL AFFAIRS.

EDITED BY THOMAS MEEHAN,

FORMERLY HEAD GARDENER TO CALEB COPE, ESQ., AT SPRINGBROOK, AND AT THE BARTRAM BOTANIC GARDEN, NEAR PHILADELPHIA; GRADUATE OF THE ROYAL BOTANIC GARDENS, KEW, (LONDON,) ENGLAND, MEMBER OF THE ACADEMY OF NATURAL SCIENCES. AUTHOR OF "AMERICAN HAND-BOOK OF ORNAMENTAL TREES, &C.

VOLUME XIV., 1872.

TERMS.—Two Dollars per Annum, Invariably in Advance.

PHILADELPHIA:

CHARLES H. MAROT, PUBLISHER,

No. 814 CHESTNUT STREET.

1872.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XIV. JANUARY, 1872. New Series, Vol. V. No. 1.

HINTS FOR JANUARY.

There is a certain satisfaction in walking through a wood when the wind is roaring through the naked boughs, and when the dead branches fall crackling about our feet; and as we tread them down still lower as we pick our way through the falling mass, we can think that the time will come when all will be green again. But the leaf and the branch which have done their duty and fell before the storm, will never rise again in that shape. The branch which we have crushed, and the leaf which decays, will crumble and mould. Their elements will resolve themselves into new combinations and new shapes. The trees which bore them will never know them more; but yet, as they bend beneath the storm of time, and lie every where on the bed of dissolution, they all might feel that they have not lived in vain.

And you, gentle readers, who have walked with us the past year through flowery field and verdant meadows, may feel some pleasure in again going through this department of our labors at this season, when the wind whistles without, and the drifting snow seems more to favor sleigh-bells than garden improvements. The many thoughts which we have borne for you, now lie on the leafless ground, and will crackle under the feet of time. We shall again strive to serve you as we have done in the many years gone by, but the decaying thought we shall never see again. But let us trust that we have not written wastefully. A word, a thought, as a leaf or branch may die; but its elements may reappear in some other shape. We often feel that our labor is in vain. We look around and see no sign. But we trust that the good thought which decayed, in some form lives; and that though we do not know how or where the children of our brain are now, working as we have done before for human pleasure and human good, so we shall continue to labor, trusting and in trust, communicating what we know to others, and asking them in turn to work with us. Thus we welcome another year, and hope that this, the fourteenth of our existence, may be as successful as have been the past.

FLOWER GARDEN AND PLEASURE GROUND.

The chief enjoyment in this department at this season, lies in planning out the necessary improvements, arrangements, and work to be done during the next active season. In gardening there are two styles of flower-growing,—one which looks to the enjoyment of beautiful flowers individually; the other for the effects which color gives to the beauty of one's ground. In the first place, hardy Herbaceous plants, Annuals, Bulbs and such like plants, are to be employed, and the flower-beds for them must be arranged with this view, so as to afford opportunities for individual examination. There is nothing better for this than long, narrow borders; such, for instance, as the narrow belts along the walks of a vegetable garden.

For flowers for effect, the mass system, of course, is to be preferred. The flowers are selected and arranged with regard to their harmonious tints of coloring one with another, and the beds must be arranged to suit the ideas sought to be accomplished. The shape of the various beds is of no account in this system of gardening. Hearts, pears, stars, crosses, and so forth, are not recognized when filled with flow-

ers; but they have to be arranged one with regard to the other, that the effect we design shall be fully accomplished.

It is a very nice winter study for ladies, and one which in England engages the attention of every one, from Queen Victoria down, to arrange in winter the beds, and the flowers to fill them, for the summer decorations of the garden. In most cases, the ladies first ascertain what plants can be procured,—geraniums, petunias, cupheas, or various leaf-plants,—familiarize themselves with their various shades of colors, and then, with a rough sketch of the beds to be filled before them, mark on each what is to go in next spring. This is then handed to the gardener time enough for him to get a supply ready. This practice has been gradually growing in England for the past thirty years, until now it is the universal winter employment of all ladies of taste; and to this great interest in flower-gardening by the English ladies, is the present high state of the flower-gardening department there to be mainly traced.

Pruning should be completed as soon as possible. Some judgment is required in pruning flowering shrubs, roses, &c., although it is usual to act as if it were one of the most common-place operations. One of the most clumsy of the hands is commonly set with a shears, and he "goes through" the whole place, clipping off every thing indiscriminately. Distinction should be made between those flowering shrubs that make a vigorous growth, and those which grow weakly; and between those which flower on the old wood of last year, and those which flower on the new growth of next season, as the effect of pruning is to force a strong and vigorous growth. Those specimens that already grow too strong to flower well, should be only lightly pruned; and, in the same individual, the weakest shoots should be cut-in more severely than the stronger ones. Some things, like the Mock Oranges, Lilacs and others, flower on the wood of last year. To prune these much now, therefore, destroys the flowering; while such as Altheas, which flower on the young wood, cannot be too severely cut-in, looking to that operation alone.

In pruning Roses, the fall-blooming kinds, which flower on the new growth, may be pruned as severely as we wish; in fact, the "harder" they are cut-in the better. In this class are the Noisette, Bourbon, Tea, China and Hybrid Perpetual and Perpetual Moss. Without considerable experience, it is difficult for the amateur to distinguish these classes. The best way to get over the difficulty is to obtain the catalogues of the principal Rose-growers, in which each kind is usually classified. Amateurs should pay more attention to the scientific—if we may so term it—study of the Rose, and its classification and general management. No class of flowers is more easily understood, and no one affords so rich a fund of perpetual interest.

Hyacinths, or other hardy bulbous roots that may not have yet been planted, may still be put in where the ground continues open. The beds of all such bulbs should be slightly protected with manure or litter, and be carefully watched for mice and vermin, which are likely to avail themselves of the shelter and feed on the roots.

Lawns that are impoverished by several seasons' mowings, will be improved by a good top-dressing. This may be applied any time after the leaves are gathered up, and before the snow falls. Soot, wood-ashes, guano, or any prepared manure, is best for this purpose, Barnyard manure is objectionable, as generally containing many seeds of weeds.

Evergreens set out last fall in windy or exposed situations, will be benefited by a shelter of cedar branches, corn stalks, or mats, set against them. Whether hardy or tender, all will be benefited thereby.

Hedges that have not had their winter dressing, should be attended to. If the remarks we have before made on hedges have been attended to through the summer, there will be very little now to do. We have said that pruning in summer weakens a plant, while pruning in winter strengthens it; and so, as hedges naturally get spoiled by growing vigorously at the top, and weakly at the sides, they should be severely summer-pruned at the apex, and winter-pruned near the base. Now will be the time to see to the latter, taking care not to make it too narrow. A good hedge should be nearly four feet wide at the base, and be cut into a point at the top.

Manure for flower-beds, borders, etc., may be hauled convenient to where it is likely to be wanted in spring; many spread it on at once; but if the soil is frozen very thick, it prevents the early thawing of the soil in the spring, and so no time is gained.

Very small plants in borders or on the lawn, or larger plants that may have been set out the past season, should be mulched with anything that will prevent the ground thawing, and so, the plant "drawing out." Most readers have

done this in the fall, but there is good to be done by it yet by those who have neglected it till now. Keep a sharp look-out for mice under the litter, however, where it is wise from the value of the specimen to run no risks; brown paper, afterwards tarred, may be wrapped around the stems as far as the litter covers them.

A great deal of trenching and sub-soiling can be done through the winter if manure be thrown over the surface before it is frozen too deep; a little snow even, dug in, will not injure the operation, as we find in our own experience.

VEGETABLE GARDEN.

Towards the latter end of the month, in the Southern States, there will be little time for study; spring will be open, and hard work will be the order of the day. Peas and potatoes must be planted as early as the season will admit. Even here in Pennsylvania we have planted peas to advantage during a favorable "spell" in the first week in February. In sowing peas, a common error is to sow them too thick: each pea should be nearly two inches apart if the soil is rich, in order to have a very satisfactory crop of large pods. We hate to see the best half of mankind, namely, womankind, imposed upon by those gardeners who grow plenty of pods with no peas in them for the dear creatures to "shell."

Asparagus beds may have the soil raked off them a little, if it was thrown up from the alleyway in the fall. It allows the sun to get to the roots earlier, and the crop is forwarded thereby. If the beds are poor, they may have a dressing of guano, or superphosphate, which has been found very beneficial to this crop. It has become almost a stereotyped recommendation to have "salt applied," but there is a good deal of the humbug about it. In dry, sandy soil it does a little good, and a little in whatever manure is applied is acceptable to them, but more has been made of the salt theory with asparagus than it deserves. Asparagus beds may be got ready as soon as the ground is sufficiently dry to admit of working. A deep soil is all-important; two feet, at least, and a situation should be chosen that is warm, and yet not too dry. The roots should be set about four inches under the surface, twenty inches or two feet from each other, and the rows eighteen or twenty inches apart. Large, fine asparagus cannot be obtained by crowding the plants; strong, two and three year old plants are the best; although in good, rich soil, one year old plants will often bear a good crop the year after planting. The length of time asparagus requires to come into bearing depends much on the soil. It is useless to attempt raising it in poor ground.

Rhubarb also is one of the roots requiring early attention, and requires a very rich and deep soil, of a clayey nature, to bring it to perfection. They need be set but a few inches under the surface, and should have a clear space of about two feet each way to develop themselves properly. There have been so many improvements made in the varieties of rhubarb now, that there can be a good selection of kinds for different circumstances; but we have not found a very great deal of difference between some kinds. Linnæus, Prince Albert and Magnum Bonum, for instance, when grown side by side, or cooked, exhibit little difference worth appreciating,—although those who peddle old rhubarb plants, under the new name of "Wine Plants," assure us we must have the "true Linnæus," to be successful.

WINDOW PLANTS.

These suffer much at this season from the high and dry temperatures at which it is necessary for human comfort to keep our dwellings. Air can seldom be admitted from the lowness of the external temperature. Saucers of water under the plants do much to remedy the drying from which room plants suffer. In such cases, however, so much water must not be given to the plants as to those without saucers. The water is drawn up into the soil by attraction, and though the surface will appear dry, they will be wet enough just beneath. The more freely a plant is growing, the more water will it require; and the more it grows, the more sun and light will it need. In all cases, those which seem to grow the fastest should be placed nearest the light. The best aspect for room plants is the southeast. They seem like animals, in their affection for the morning sun. The first morning ray is worth a dozen in the evening. Should any of our fair readers find her plants, by some unlucky miscalculation, frozen in the morning, do not remove them at once to a warm place, but dip them in cold water, and set them in a dark spot, where they will barely escape freezing; sun-light will only help the frost's destructive powers.

But, besides the aridity of the atmosphere, a more dangerous enemy to room plants is the

fumes of burning gas. Many a lady, who grew plants well while the family was poor, and they lived in cosy rooms by old wood-stoves, wonders why, when rich enough to "get the gas introduced," they have no more "luck" with plants. Where plants are grown in gas-lighted rooms, especial cabinets must be provided to enclose them from the space in which gas burners operate.

GREENHOUSE.

We note, with much interest, the increase of these grateful winter pleasures; but they are not near as common as they might be, through a fear that the expense is more than can readily be borne. But this is generally through the proprietor himself not giving the matter much thought, but depending altogether on the carpenter. It is best always, in this matter, to have the advice of an intelligent and experienced gardener. Every twenty-five dollars invested in this way will save hundreds from the carpenter's bill. We note many places rendered worthless for a thousand dollars, which, with a proper understanding of the wants of plants, and proper arrangements, might have been made pleasant places for half that sum.

In the arrangement of plants in the green house, continual change is commendable. Every few weeks the plants may be re-set, and the houses made to appear quite different. In the end where the lowest plants once were set, now the taller ones may be placed; here a convex group, and there presenting a concave appearance. Drooping plants on elevated shelves, and hanging baskets from the roof, make little paradises of variety in what were once unbearable monotony. Gardeners often wish to know the secret of maintaining a continued interest, on the part of their employers, in their handiwork, and this is one of the most potent—continued changed and variety in the appearance of every thing. Beautiful flowers, graceful forms, elegant combinations, all developing themselves with a healthy luxuriousness and ever changing endlessness, will wake up an interest in the most indifferent breast.

The temperature of the greenhouse at this season should be maintained at about 50°, allowing it to rise 10° or 15° under the full sun, and sinking 10° or so in the night. Though many of our practical brethren differ from us, men, for some of whose opinions we entertain the highest respect, we do not recommend a very great difference between night and day temperature, we think 10° ample allowance. It is following nature, no doubt; but we would rather strive to beat nature. She cannot make the specimens we do, nor flower them so beautifully and profusely, and in many other respects we think the practical gardener can much improve on her red-tape notions and old fashioned courses.

Many plants will seem to be full of roots, and the temptation to repot will be very great; but if a plant is desired to flower freely, the fuller of roots the pot is, the better. Continual pot-*tering* is the bane of plant-culture. If the soil is so very much exhausted that the flowers are likely to be small and poor, a half-inch of the soil in the pot, on the surface, may be replaced by a top-dressing of rich compost. But watchfulness must be afterwards exercised, or the plant will get over-dry, as the loose soil on the top will often appear wet, when in reality all below is as dry as a powder-horn.

This, by the way, is often the cause of the flower buds of Camellias falling off. The little dribblings of the water-pot, they daily receive, do not penetrate far beneath the surface; the roots at the bottom do not get enough, and the buds drop. Camellias ought to be in such a part of the house as not to be liable to become often dry; such a spot, for instance, as will admit of one good, thorough watering being enough to last for a week.

COMMUNICATIONS.

ELIGIBLE TIMBER TREES.

BY FERD. VON MUELLER, MELBOURNE, AUS.

[We have been favored by Dr. Mueller with a copy of a communication made by him to the Victorian Acclimation Society. The information he gives even about our own trees, is conveyed in such a concise form, that it would interest most of our readers; but in addition, it tells so much about Australian trees which few of us know, that we have no doubt it will be of valu

to us in every respect. The timber question is one which particularly interests us just now, and as any of the Australian trees will do well in those parts of our country which may be called above the frost line, the information about them will be of particular value to that section. We give some notes of our own.—ED.]

The trees marked with an asterisk * should receive prominent attention in Victorian wood culture. The dimensions given are the greatest of which the writer could trace reliable records.

I.—Coniferous Trees.

ARAUCARIA BIDWILLI, Hook.*

Bunya Bunya. Southern Queensland. A tree 150 feet in height, with a fine grained, hard and durable wood; the seeds are edible.

ARAUCARIA BRAZILIENSIS, A. Rich.

Brazilian Pine. A tree 100 feet high, producing edible seeds. Ought to be tried in our fern gullies.

ARAUCARIA COOKII, R. Br.

In New Caledonia, where it forms large forests. Height of tree 200 feet.

ARAUCARIA CUNNINGHAMI, Ait.*

Moreton-Bay Pine.—East Australia, between 14° and 32° S. latitude. The tree gets 130 feet high. The timber is used for ordinary furniture.

ARAUCARIA EXCELSA, R. Br.*

Norfolk-Island Pine. A magnificent tree, sometimes 220 feet high, with a stem attaining ten feet in diameter. The timber is useful for ship building and many other purposes.

ARAUCARIA IMBRICATA, Pav.

Chili and Patagonia. The male tree attains only a height of 50 feet, but the female reaches 150 feet. It furnishes a hard and durable timber, as well as an abundance of edible seeds, which constitute a main article of food of the natives. Eighteen good trees will yield enough for a man's sustenance all the year round. In our lowlands of comparative slow growth, but likely of far more rapid development if planted in our ranges. (1)

CALLITRIS QUADRIVALVIS, Vent.

North Africa. A middling-sized tree, yielding the true Sandarac resin.

CEPHALOTAXUS FORTUNEI, Hook.

China and Japan. This splendid yew attains a height of 60 feet, and is very hardy.

[1] This has been found hardy near Philadelphia whenever well protected from wind in winter.

CRYPTOMERIA JAPONICA, Don.

Japan and Northern China. A slender evergreen tree, 100 feet high. It requires forest valleys for successful growth. The wood is compact, very white, soft and easy to work. (2)

CUPRESSUS BENTHAMI, Endl.

Mexico, 5 to 7,000′. A beautiful tree, 60 feet high. The wood is fine grained and exceedingly durable.

CUPRESSUS LAWSONIANA, Murr.* (*Chamæcyparis Lawsoniana*, Parl.)

Northern California. This is a splendid red-flowered cypress, growing 100 feet high, with a stem of 2 feet in diameter, and furnishes a valuable timber for building purposes, being clear and easily worked.

CUPRESSUS LINDLEYI, Klotzsch.

On the mountains of Mexico. A stately cypress, up to 120 feet high. It supplies an excellent timber.

CUPRESSUS MACROCARPA, Hartw.* (*C. Lambertiana*, Gord.)

Upper California. This beautiful and shady tree attains the height of 150 feet, with a stem of 9 feet in circumference, and is one of the quickest growing of all conifers, even in poor dry soil.

CUPRESSUS NUTKAENSIS, Lamb. (*Chamæcyparis Nutkaensis*, Spach.)

North-west America. Height of tree 100 feet. Wood used for boat-building and other purposes; the bast for mats and ropes.

CUPRESSUS OBTUSA, F. von Muell. (*Retinospora obtusa*, S. & Z.

Japan. Attains a height of 80 feet; stem 5 feet in circumference. It forms a great part of the forests at Nipon. The wood is white veined and compact, assuming, when planted, a silky lustre. It is used in Japan for temples. There are varieties of this species with foliage of a golden and of a silvery hue.

Two other Japanese cypresses deserve introduction, namely: CUPR. BREVIRAMEA (*Chamæcyparis breviramea*, Maxim.), and CUPR. PENDENS, (*Chamæcyparis pendula*, Maxim.)

CUPRESSUS PISIFERA, F. von Muell. (*Chamæcyparis pisifera*, S. & Z.)

[2] Young trees so far north as Philadelphia lose their leaders for a few years if unprotected; but after they have reached six or eight feet high, they will resist a higher temperature than zero without injury.

Japan It attains a height of 30 feet, producing also a variety with golden foliage.

CUPRESSUS SEMPERVIRENS, L.

Common Cypress of South Europe. Height of tree up to 80 feet. It is famous for the great age it reaches, and for the durability of its timber, which is next to imperishable. At present it is much sought for the manufacture of musical instruments.

CUPRESSUS THURIFERA, Humb, B. & K.*

Mexico; 3,000 to 4,500 feet above sea-level. A handsome pyramidal tree, upwards of 40 feet high.

CUPRESSUS THUYOIDES, Linde. (*Chamæcyparis sphæroidea*, Spach.)

White Cedar of North America; in moist or morassy ground. Height of tree 80 feet; diameter of stem 3 feet. The wood is light, soft, and fragrant; it turns red when exposed to the air. (3)

CUPRESSUS TORULOSA, Don.*

Nepal Cypress Northern India; 4,500 to 8,000 feet above sea-level. Height of tree 150 feet; circumference of stem, as much as 16 feet. The reddish fragrant wood is as durable as that of the Deodar Cedar, highly valued for furniture. The tree seems to prefer the limestone soil.

DACRYDIUM CUPRESSINUM, Soland.

New Zealand. Native name, *Rimu;* the Red Pine of the colonists. This stately tree acquires the height of 200 feet, and furnishes a hard and valuable wood. With other New Zealand conifers particularly eligible for our forest valleys. A most suitable tree for cemeteries, on account of its pendulous branches.

DACRYDIUM FRANKLINI, Hook. fil.

Huon Pine of Tasmania; only found in moist forest recesses, and might be planted in our dense fern-tree gullies. Height of tree 100 feet; stem circumference 20 feet. The wood is highly esteemed for ship-building and various artizan's work.

DAMMARA ALBA, Rumph. (*D. orientalis*, Lamb.)

Agath Dammar. Indian Archipelagus and mainland. A large tree, 100 feet high, with a stem of 8 feet in diameter; straight and branchless for two-thirds its length. It is of great importance on account of its yields of the transparent Dammar resin, extensively used for varnish.

DAMMARA AUSTRALIS, Lamb.*

Kauri Pine. North island of New Zealand. This magnificent tree measures, under favorable circumstances, 180 feet in height and 17 feet in diameter of stem. The estimated age of such a tree being 700 or 800 years. It furnishes an excellent timber for furniture, masts of ships, or almost any other purpose; it yields besides the Kauri resin of commerce, which is largely got from under the stem of the tree. The greatest part is gathered by the Maories in localities formerly covered with Kauri forests; pieces, weighing 100 lbs., have been found in such places.

DAMMARA MACROPHYLLA, Lindl.

Santa Cruz Archipelagus. A beautiful tree, 100 feet high, resembling D. alba.

DAMMARA MOOREI, Lindl.

New Caledonia. Height of tree about 50 feet.

DAMMARA OBTUSA, Lindl.

New Hebrides. A fine tree, 200 feet high; with a long, clear trunk; resembling D. Australis.

DAMMARA OVATA, Moore.

New Caledonia. This tree is rich in Dammar resin.

DAMMARA ROBUSTA, Moore.

Queensland Kauri. A tall tree, known from Rockingham's Bay and Wide Bay. It thrives well even in open, exposed, dry localities at Melbourne.

DAMMARA VITENSIS, Seem.

In Fijii. Tree 100 feet high; probably identical with Lindley's D. longifolia.

FITZROYA PATAGONICA, Hooker fil.

Southern parts of Patagonia and Chili. A stately tree, 100 feet high, up to 14 feet in diameter of stem. The wood is red, almost imperishable in the open air or under ground; it does not warp, and is easy to split. It comes into commerce in boards 7 feet long, 8 inches wide, ½ inch thick, and is used for roofing, deals, doors, casks, &c. The outer bark produces a strong fibre used for caulking ships. Like many other trees of colder regions, it would require here to be planted in our mountain forests. (4.)

[3] This probably rarely exceeds 50 feet high. Many extra American writers as well as some of our own incorrectly call the Arborvitæ "White Cedar."

[4] Our own experiments with this have failed. The plants have died during summer. We should be glad to know whether there are any living plants in America.

Frenela Actinostrobus, Muell. (*Actinostrobus pyramidalis, Miq.*)
From S. W. Australia, though only a shrub, is placed here on record as desirable for introduction, because it grows on saline desert flats, where any other conifers will not readily succeed. It may become important for coast cultivation.

Frenela Macleayana, Parl.
New South Wales. A handsome tree of regular pyramidal growth, attaining a height of 70 feet; the timber is valuable.

Frenela verrucosa, A. Cunn.
Also several other species from Victoria and other parts of Australia are among the trees which may be utilized for binding the coast and desert sand. They all exude Sandarac.

Ginkgo biloba, L. (*Salisburia adiantifolia*, Smith.)
Ginkgo tree. China and Japan. A deciduous fan-leaved tree, 100 feet high, with a straight stem 12 feet in diameter. The wood is white, soft, easy to work, and takes a beautiful polish. The seeds are edible, and when pressed, yield a good oil. Ginkgo trees are estimated to attain an age of 3000 years.

Juniperus Bermudiana, L.*
The Pencil Cedar of Bermuda and Barbadoes. This species grows sometimes 90 ft. high, and furnishes a valuable red durable wood, used for boat building, furniture and particularly for pencils, on account of its pleasant odor and special fitness. Many of the plants called Thuya or Biota Meldensis in gardens, belong to this species. (5.)

Juniperus brevifolia, Antoine.
In the Azores up to 4,800′; a nice tree with sometimes silvery foliage.

Juniperus Cedrus, Webb.
A tall tree of the higher mountains of the Canary Islands.

Juniperus Chinensis, L.*
In temperate regions of the Himalaya, also in China and Japan. This tree is known to rise to 75 feet. Probably identical with the Himalayan Pencil Cedar (Juniperus religiosa, Royle); it is remarkable for its reddish close-grained wood. (6.)

Juniperus communis, L.
One of the three native coniferæ of Britain, attaining under favorable circumstances a height of nearly 50 feet; of medicinal uses; the berries also used in the preparation of gin.

Juniperus drupacea, Labill. Plum Juniper.
A very handsome long-leaved Juniper, the Habbel of Syria. It attains a height of 30 feet, and produces a sweet edible fruit, highly esteemed throughout the Orient.

Juniperus excelsa, Bieberst.
In Asia Minor, 2 to 6000 feet above the sea level. A stately tree, 60 feet high.

Juniperus flaccida, Schlecht.
In Mexico, 5 to 7000 feet high. A tree of 30 feet in height, rich in a resin, similar to Sandarac.

Juniperus fœtidissima, Willd.
A tall beautiful tree in Armenia and Tauria, 5000 to 6,500 feet.

Juniperus Mexicana, Schiede.
Mexico at an elevation 7000 to 11,000 feet. A straight tree, 90 feet high, stem 3 feet diameter, exuding copiously a resin similar to Sandarac.

Juniperus occidentalis, Hook.
North California and Oregon, at 5000 feet. A straight tree, 80 feet high, with a stem of 3 feet diameter.

Juniperus Phœnicea, L.
South Europe and Orient. A small tree 20 feet high, yielding an aromatic resin.

Juniperus procera, Hochst.
In Abyssinia. A stately tree, furnishing a hard useful timber.

Juniperus recurva, Hamilton.
On the Himalayas, 10 to 12,000 feet high. A tree attaining 30 feet in height.

Juniperus sphærica, Lindl.
North China. A handsome tree, 40 feet high.

Juniperus Virginiana, L.
North American Pencil Cedar or Red Cedar. A handsome tree, 50 feet high, supplying a fragrant timber, much esteemed for its strength and durability; the inner part is of a beautiful red color, the outer is white; it is much used for pencils.

---

[5] *Biota Meldensis* was shown by the Editor in his paper on *Adnation in Coniferæ* to be but a free-leaved (weakened) form of *Biota orientalis*. Since that time it has fruited in the United States, and it proves the correctness of this view.

[6] This is a very hardy, and as b autiful a tree as is useful

LIBOCEDRUS CHILENSIS, Endl.
In cold valleys on the southern Andes of Chili, 2000 to 5000 feet. A fine tree, 80 feet high, furnishing a hard resinous wood of a yellowish color.

LIBOCEDRUS DECURRENS, Torr.
White Cedar of California, growing on high mountains. Attains a height of fully 200 feet, with a stem 25 feet in circumference.

LIBOCEDRUS DONIANA, Endl.
North island of New Zealand, up to 6000 feet elevation. A forest tree 100 feet high, stem 3 feet and more in diameter. The wood is hard and resinous, of a dark reddish color, fine grained, excellent for planks and spars.

LIBOCEDRUS TETRAGONA, Endl.
On the Andes of North Chili, 2000 to 5000 feet. This species has a very straight stem, and grows 120 feet high. The wood is quite white, and highly esteemed for various artisans' work, indeed very precious.

NAGEIA (PODOCARPUS) AMARA, Blume.
Java, on high volcanic mountains. A large tree, sometimes 200 feet high.

NAGEIA (PODOCARPUS) CUPRESSINA, R. Br.
Java and Phillipine Islands. Height of tree 180 feet, furnishing a highly valuable timber.

NAGEIA (PODOCARPUS) DACRYDIOIDES, A. Rich.
In swampy ground of New Zealand; the "Kahikatea" of the Maories, called White Pine by the colonists. Height of tree 150 feet; diameter of stem 4 feet. The white sweet fruit is eaten by the natives; the wood is pale, close-grained, heavy, and among other purposes used for building canoes.

NAGEIA (PODOCARPUS) FERRUGINEA, Don.
Northern parts of New Zealand. The Black Pine of the colonists; native name "Miro." Height of tree 80 feet; it produces a dark red resin of a bitter taste; the wood is of a reddish color, very hard.

NAGEIA (PODOCARPUS) LAMBERTI, Klotzsch.
Brazils. A stately tree, yielding valuable timber.

NAGEIA (PODOCARPUS) PURDIEANA, Hook.
Jamaica, at 2500 to 3500 feet. This quick-growing tree attains a height of 100 feet.

NAGEIA (PODOCARPUS) SPICATA, Br.
Black Rue of New Zealand. Tree 80 feet high; wood pale, soft, close and durable.

NAGEIA (PODOCARPUS) THUNBERGII, Hook.
Cape of Good Hope. A large tree, known to the colonists as "Geelhout;" it furnishes a splendid wood for building.

NAGEIA (PODOCARPUS) TOTARA, Don.*
New Zealand. A fine tree, 120 feet high, with a stem of 20 feet in circumference, ; it is called mahogany pine by the colonists. The reddish, close-grained and durable wood is valuable both for building and for furniture, and is also extensively used for telegraph posts; it is considered the most valuable timber of New Zealand. Many other tall timber trees of the genus Podocarpus or Nageia occur in various parts of Asia, Africa and America, doubtless all desirable, but the quality of their timber is not well known, though likely in many cases excellent. Nageia is by far the oldest published name of the genus.

PHYLLOCLADUS RHOMBOIDALIS, Rich.
Celery Pine of Tasmania. A stately tree up to 60 feet high, with a stem of 2 to 6 feet in diameter. The timber is valuable for ships' masts. It will only grow to advantage in deep forest vallies.

PHYLLOCLADUS TRICHOMANOIDES, Don.
Celery Pine of New Zealand, northern island; it is also called Pitch Pine by the colonists. This tree attains a height of 70 feet, with a straight stem of 3 feet in diameter, and furnishes a pale close-grained timber, used particularly for spars and planks; the Maories employ the bark for dying red and black.

PINUS ABIES, Du Roi.* (*Pinus Picea Linne.*)
Silver Fir, Tanne. In middle Europe up to 50° N. Lat, forming dense forests. A fine tree, already the charm of the ancients, attaining 200 feet in height, and 20 feet in circumference of stem, reaching the age of 300 years. It furnishes a most valuable timber for building, as well as furniture, and in respect to lightness, toughness and elasticity it is even more esteemed than the Norway Spruce, but is not so good for fuel or for charcoal. It also yields a fine white resin and the Strasburg turpentine, similar to the Venetian. (7)

[7] Dr. Mueller adopts the plan of classing Abies, Picea, Larix and Cedrus all as "Pinus." There is so much that is practically inconvenient in this, that we are sorry Botanists find it necessary to science to combine them. Nurserymen will have to keep to the old way, as they have no means of distinguishing Larches and Spruces and Firs, so as to convey the popular idea, without keeping the sections generically distinct.

PINUS ABIES VAR. CEPHALONICA, Parlatore (*Pinus Cephalonica*, Endl.)

Greece, 3 to 4000 feet above the sea. A tree 60 feet high, with a stem circumference of 10 feet. The wood is very hard and durable, and much esteemed for building

PINUS ABIES VAR. NORDMANNIANA, Parlatore. (*P. Nordmanniana*, Steven.)

Crimea and Circassia, 6000 feet above the sea. This is one of the most imposing firs, attaining a height of a 100 feet. with a perfectly straight stem. It furnishes a valuable building timber.

The Silver Fir is desirable for our mountain forests

PINUS ALBA, Ait.

White Spruce. From Canada to Carolina, up to the highest mountains. It resembles P. Picea, but is smaller, at most 50 feet high. Eligible for our alpine country. (8)

PINUS ALCOCQUIANA, Parlatore.

Japan, at an elevation of 6 to 7000 feet. A fine tree, with very small blue-green leaves; the wood is used for light household furniture. (9)

PINUS AMABILIS, Dougl.

Californian Silver Fir. North California, at an elevation of 4000 feet. A handsome fir, 200 feet high, circumference of stem 24 feet; the stem is naked up to 100 feet.

PINUS AUSTRALIS, Michx.*

Southern or Swamp Pine, also called Georgia, Yellow Pitch or Broom Pine. In the Southern States of N. America, the tree attains a height of 70 feet. It furnishes a good timber for furniture and building. It is this tree which forms chiefly the extensive pine barrens of the United States, and yields largely the American turpentine. (10)

PINUS AYACAHUITE, Ehrenb. (*P. Loudoniana*, Gord.)

In Mexico, at an elevation of 8000 to 12,000 feet. An excellent pine, 100 to 150 feet high, with a stem diameter of 3 to 4 feet, yielding a much esteemed white or sometimes reddish timber.

[8] *Pinus picea* is the name here adopted for Norway Spruce.

[9] We find this Japan species quite hardy in Philadelphia, and is in appearance between a Norway and White Spruce.

[10] This tree remains for years in a dwarf condition, in appearance like a tussock of sedge grass. In, we believe, about ten years it starts to make a strong leader, and will then grow many feet in one year.

PINUS BALSAMEA, L.

Balsam Fir, Balm of Gilead Fir. Canada, Nova Scotia, New England. An elegant tree, 40 feet high, which, with Pinus Fraseri, yields the Canada Balsam, the well known oleo-resin. The timber is light, soft and useful for furniture It thrives best in cold swampy places. Eligible for our Alps.

PINUS CANADENSIS, L

Hemlock Spruce. In Canada and over a great part of the United States, on high mountains. A very ornamental tree, 100 feet high, with a white cross-grained and inferior wood. The tree, however, is extremely valuable on account of its bark, which is much esteemed as a tanning material; it is stripped off during the summer months. The young shoots are used for making spruce beer.

PINUS CANARIENSIS, C. Smith.*

Canary Pine. Canary Islands, forming large forests at an elevation of 5 to 6000 feet. A tree 70 feet high, with a resinous durable very heavy wood, not readily attacked by insects. It thrives well in Victoria, and shows celerity of growth.

PINUS CEDRUS, L.

Cedar of Lebanon Together with the Atlas variety on the mountains of Lebanon and Taurus, also in N. Africa. The tree grows to a height of 100 feet, and attains a very great age; the wood is of a light reddish color, soft, easy to work, and much esteemed for its durability.

(*To be Continued.*)

ABOUT THOSE WHITE GRUBS.

BY S. S. RATHVON.

I have just been reading Mr. Riley's letter, and the reply to it in the *Gardener's Monthly* for Nov., 1871, pp. 341 and 342. I should not be surprised if you brought him "down on you" again "like a thousand of bricks." You don't seem to have fully apprehended what I think is the point of his criticism, in reference to the nomenclature of the "white Grub." I think he intended to twit you for coupling together two generic names in referring to that insect, and now you have made the matter worse, for, so far as my knowledge extends, neither *Melolontha* nor *Phyllophaga* were ever applied specifically to any of the Lamellicornia of North America.

I think this is his meaning, from the fact that in attempting to quote a parallel case in Botany, he couples a family and a generic name, which is a little beyond a fair comparison, as you only used two generic names, and under certain circumstances (very remote, however,) might have had some ground for such an error.

Linnæus originally described eighty-seven species of Lamellicornia, under the generic name of *Scarabæus*, and two of these he specifically named *fullo* and *melolontha*. Nearly all, if not quite all, of these species have, since his time, been referred to other genera established by Fabricus, MacLeay, Latrielle, Leach, Kirby, Illiger, Megerle, Hope, Serville, Laporte and others. Fabricus established the genus *melolontha*, and made Linnæus' *Scarabæus fullo* the type. As the Linnæan species *melolontha* was retained in the genus of that name, Fabricus therefore named it, specifically, *vulgaris*, and there both those insects still remain, and *Scarabæus melolontha* has become obsolete. Therefore, your "youthful" entomological knowledge was faulty, unless you acquired it on European soil, and in reference to European subjects; but *melolontha*, as a specific name, must have been suppressed long before our time.

The genus *Phyllophaga* (which includes our May Beetle) was established by Dr. Harris, and Haldeman, and Leconte in their revision of the Melsheimer catalogue, published by the Smithsonian Institution, gave that name priority to *Lachnosterna* of Hope, and *Ancylonycha* of Dejean and Blanchard. In the Harris catalogue, compiled prior to his erection of the genus *Phyllophaga*, he included the species *quercina* in Latrielle's genus *Rhisotrogus*.

Knoch is the author of the specific name *quercina*, but this has its synonyms as well as the generic name; one of those is *fervida*, and is credited to Olivier with a doubt, and the other is *fervens* of Schonherr, also credited to Gyllenhal with a doubt. And now going back to *Lachnostema* again, and dropping *Phyllophaga*, shows that "nothing's fix'd nohow"—as Fydgit Fyxington said—any more in Entomology than it is in botany or any other branch of Natural Science. Twenty-three species of *Phyllophaga* are recorded in the revised Melsheimer catalogue, but the most common in this locality are *quercina* and *hirsuta* of Knoch. So you see it is difficult to determine the species from the grub alone, unless we made very minute and careful observations, and bred the *imago*, for they are all "white grubs in the *larvae* state.

As to the rolling process for the destruction of the Colorado Potato Beetle, I must say I have but little confidence in it, used either crosswise or lengthwise. It seems to me that a roller heavy enough to crush the Beetles, would also crush the vines beyond recovery; but perhaps this is a sacrifice that might well be made, provided we killed all the Beetles. As for Grasshoppers, if they are as nimble everywhere as they are in Lancaster county, you would get precious few under a roller. Go out into a field infested by them and try to make a collection, and you will find that, although there may be thousands of them, you will not be apt to tread on any of them. It is just barely possible that in a cool day, when they are partially benumbed, or when they are very young, some of them might be crushed with a roller; but they are great jumpers, from the moment they leave the egg; and as to prospective torpidity, I have found them active jumpers and also flyers in February, March and April, in places where they can have the benefit of the sun. Still it may be well to try any experiment for the destruction of both these and the Potato Beetles, even if it should be under a mental reservation or protest.

[It must be evident to the reader, that it will be as much as our editorial life is worth to us to search out very remote names of the past in reference to modern entomology. Such an atmosphere isn't healthy.—ED.]

VICTORIA, AUSTRALIA—RECOLLECTIONS OF A JOURNEY FROM MELBOURNE TO GEELONG.

BY MR. W. T. HARDING, NONANTUM HILL NURSERY, BRIGHTON, MASS.

The student and traveler, when contemplating the wonderful and varied forms of nature, will be struck with amazement when beholding, for the first time, the singular, the beautiful and eccentric forms of the flora of Australia. So widely do they differ in habits of growth and appearance from the trees, shrubs and plants of other countries. The casual observer would scarcely recognize them as belonging to the same family or genera, in the vegetable kingdom, he is so familiar with in other hemispheres. The forests present a stupenduous and magnificent arboreal growth of such hugh dimensions, as to have no

comparison in the universe of nature, excepting the Sequoias or "mammoth trees" of California. Just fancy the enormous bulk of a Eucalyptus tree, whose lengthened shaft seems almost lost in the cloudless sky, as its boughs and branches wave nearly five hundred feet high in the blue ether above, and like the writer, you will exclaim, wonderful! wonderful!

"The king among the grasses, the imposing Palm trees," as Humboldt says, the Seaforthia elegans, may be seen growing with the crustaceous like Tramia spenalis, the strangely formed grass tree Xanthorrhœa, the graceful and elegant tree ferns, Alsophilla Australis and Cibotum Billardi, and their more humble congeners, though not less beautiful, Gliechenia microphylla, Davallia dubia, Lindsia media, Adiantum hispidulum and Botrychium Australis. We made notes of the above named trees and plants, when about midway between Melbourne and Geelong, as we journeyed thither.

The following were also noticed, namely, Boronia paradoxa and B. serrulata, the latter a sweet and pretty shrub, and apparently everblooming, and emitting a fragrance so delicious as to resemble a combination of Jasmines and Violets. The settlers lovingly cultivate it as "the native rose of Australia," although it bears not the slightest resemblance to a rose whatever, but dies with its sweet perfume. Growing among the Boronias were bushes of Croton rosmarinifolia, from eight to ten feet high; Deresia corymbosa and D. funcea, with Frankenia pauciflora, a handsome evergreen shrub, bearing pretty pink flowers of pleasing appearance, and in height about ten feet. Dillwynia tenuifolia, Hovia elliptica and H. Celsii, one of the most beautiful of New Holland plants, indigenous or cultivated. Mirbelia Baxterii, and Zuria octandri, with its green colored flowers Burtonia brunioides, Hovia Australis and Dracophyllum secundum, growing about seven feet high and much resembling a Dracena. Some splendid masses of Dendrobium teretifolium and the Stag's-horn Fern, Ptalycerium dicicorne almost covered the stems of Acacia angulata and A. dealbata. Eutaxia myrtifolia and Pultenia stricta grew side by side with Chorozema Hermanii, and Jacksonia horida, whose needle-shaped spines reminded us that however thickly strewn with roses the path of life may be, that there are thorns as well as flowers by the way. These are but a few we mention of the hundreds of species we found growing upon a space of less than twelve acres in extent. Singular as it may appear, that among a flora so rich and extensive as abounds in Australia, that there is neither an indigenous forest fruit or nut to be found that would satisfy the hungry craving of the weary wayfarer, whose lot it may be to wander therein.

Australia may well be termed "a land of paradoxes," as every thing there, in both the animal and vegetable kingdom, is a paradox; and seems so oposite and contrary to everything else of a kindred nature in other lands. "The fish of the sea," and "the fowl of the air," "and every thing that creepeth," and even man, in his aboriginal state, seems to be more abject and beast-like than either Indians or Hottentots, and are a complete paradox to the Caucassian "in the image of God's created." There is no doubt of their being lower in the scale of humanity than any other animated beings who claim to belong to the human family. Physically, they resemble the monkey as much as the man, minus the tail; and their instincts or reasoning powers are about the same level, as they roam in complete nudity through the solitudes of their primeval forests. As civilization advances they are fast disappearing, said to be dying off, as the Indians are on this continent; but not from the same cause, rum, as is alleged, or "the pale-face's fire water." To protect them from its baneful influences, the Government imposes a heavy fine or penalty for either selling or giving it to them. But perhaps the most cogent reason why they are not allowed any grog is this, that in consequence of the general scarcity of water, and the want of some fluid to slake the thirst of the enlightened colonists, little or none can be spared for the poor ignorant blacks.

As we traveled onwards through a remarkably beautiful country, so park-like in appearance, with gentle undulations here and there, while scattered at intervals were some noble specimens of Casuarina trees of rare beauty and peculiarly interesting. Old and grim antediluvian Eucalyptus piperata, E. albicans and E. undulata, whose massive trunks looked like towers of strength that had long withstood the assaults of time, and yet seemed good for a thousand years to come; and like the sacred piles of ancient masonry, seemed as though they were surrounded with an air of grandeur and greatness, in the sylvain solitudes of the wilderness. Beneath their quiet umbrageous shades blooms many a beautiful flower, and as sweet as "Afric's spicy gale"

Pretty little tufts of Tetratheca and Trachemyne incica, about two feet high, with several other unassuming little beauties, were blushing unseen. Tucos flaccida, Chloranthe glandulosa, Epacris grandiflora, E. nivalis and Gastrolobium retusum, elegant little flowering shrubs, were happily blended together.

Spread around us were the picturesque wilds of nature, with scenery seldom, if ever, surpassed in rugged boldness of outline, and with the unrestricted privilege "to roam through the wilds and deep glens that's so dreary," in a country so deeply interesting, was a boon indeed. Such days and nights of anxious happiness we shall never see again.

After an hour or two's rest in a spot so delightful, we journeyed on through groups of Pomaderris Wendlandiana, Callistemon lanceolata, Metrosideros glomulifera and Phebalium elata, pretty bushes averaging from twenty to twenty-five feet high. Some splendid specimens of Flindersia Australis of a uniform growth, with handsome stems, about one hundred feet high, and the beautiful evergreens Cryptocarya obovata and C. glaucescens from forty to fifty feet high. The curiously formed Minosopus tree, with its monkey-faced flowers, were thinly scattered around; and there saw it in bloom for the first time.

As the day was on the wane, and the sun slowly descending from his realms above, and resigning his rule of the day in favor of the "Lunar Queen," whose province it was to govern the night, and in her soft and mellowed light, whose silvery sheen illumined the forest road with a light little inferior from the mid-day sun, and enjoying the vernal delights of a scene so arcadian, so serene and subdued was the voice of nature, while "hearing the sound of a mountain stream, and feeling the charm of a poet's dream," we gently meandered along. On reaching a watering-place adjacent we rested for the night.

We had not proceeded far in the morning, when we were passed by a troupe of mounted police, escorting two noted "bushrangers," chained to a bullock-dray, and whose acts of violence had long been a terror to the settlers and travelers in those parts. Two more villianous looking scoundrels would be hard to find, and whose scowling features seemed to indicate them capable of committing any and every crime known to the law. As we looked upon the motley actors just met upon the sylvan stage, and reviewed the characters represented, we thought how strange are the parts we are all performing in the great drama of life. The two "stars" of the company had none of the romantic dash or swaggering gait of the highwaymen, freebooters or bandits of the mimic stage, "dressed to kill," in their tawdry clothes – but were scowling, sullen, morose looking miscreants of most forbidding appearance; and whose visages were marked with the fratricidal brand of Cain. Again the day was far spent as we neared a stream where we intended to encamp for the night, when "sounds of revelry" and boistrous mirth became more audible as we descended a hill. The noise and "rolicking-fun" soon after ceased, when the vocal strains of a fine tenor voice sang loud and clear, the charming air and pleasant song,

"The maids of merrie England, how beautiful are they,"

The sentiment so sweet and true, was harmoniously joined in by the party, whose voices commingled in the pleasing refrain.

As we listened to the once familiar words, we felt certain that the voice of the singer was equally so, but when and where heard could not well remember. Our footsteps were quickened, as anxious "to join the jovial crew," we pushed onwards to the camp-fires, where a number of happy looking mortals were enjoying themselves in various ways, which seemed to prove that there was such a state as rural felicity even in the forest shades of New Holland.

With but little ceremony, we introduced ourselves as "travelers from Melbourne, on our way to Geelong," and were cordially welcomed to a share of their glowing fires and bivouac for the night. In the person of a handsome and gentlemanly fellow we fancied we recognized the singer whose song awakened thoughts of home and the loved ones there. Scarcely had we been seated, before our new acquaintance enquired what part of England did you come from, and how long have you been away, and what are you doing now? Similar questions were asked and answered all around, when our interrogator somewhat surprised us with the information that his name was May, and was at one time in the nursery business near Bedale, in Yorkshire. "And my name is Harding, and well do I remember you when a young man, and in your father's employ years ago." The recognition was mutual, when we referred to the time we heard him sing the same song he had just repeated, at a village party long ago. He, too, had not forgotten the time when bidding each other "good-bye," at the nursery gate, one cold December's

morning, when, with "great expectations," we journeyed to the great metropolis, the centre in circumference of horticulture, where all young and aspiring gardeners aim for.

It was then, and may be so now, considered necessary to have a course of practice in and around London to qualify a gardener for a first-class position.

To sleep was out of the question; it seemed utterly impossible for any thing mortal to slumber with the myriads of mosquitoes, fleas, ants and other abominable insects, torturing us in every way; so we passed the night in the smoke of the camp-fire, discussing "auld lang syne."

It was our good fortune to have fallen in with a party of "gum pickers," who were gathering gum from the Acacias trees for exportation, and little inferior to the Gum Arabic of commerce procured in Senegal and the East Indies, from Acacia fera and A. Arabica trees.

The varieties of Acacias are many, and number nearly two hundred species, indigenous to Australia alone; and are indispensable for greenhouse and conservatory decoration. Few, if any flowering trees or shrubs are more beautiful or interesting than some of them. Such, for instance, as Acacia pubescens, A. conspicua, A. undulata, A. grandis and A. Drummondii, grand beyond comparison. A. cultriformis, very curious; A. platyptera, A. Nielii, A. albicans, A. urophylla, so fragrant and pretty; A. amœna, a lovely gem; A. suavolens, deliciously sweet; A. pulchella and A. spectabilis, beautiful indeed. These are but a few named of the many varieties, and all of easy culture. They will bear a good deal of hard usage and thrive moderately well, or perhaps better than most plants, in dwelling house windows, and for setting off a choice bouquet we know of nothing more graceful or pretty.

The groves and thickets of Acacia generally found in all parts of Australia are extensive, and in character and habit are very decided and marked. They are conspicuous in their shades of green and, in many respects, curiously formed foliage and flowers. Some are of compact habit, some erect, others gracefully weeping, some fern like in appearance, with soft and feathery foliage; while others are rather robust growing trees, and are very beautiful.

Most of the following day was spent in the adjacent groves until late in the afternoon, when our journey was resumed and continued until near midnight, when we again sought repose beneath the star-spangled sky.

The very curious and singular bird's nest fern, Neotopteris stipitata, grew freely about the roots of Banksia compar, B. latifolia and Pisonia grandis, a comely shrub growing about sixteen feet high. Covering the slope of a long hill side was an immense growth of Charlwoodia congesta, nearly uniform in height, from fourteen to fifteen feet, and bore a strong resemblance to Dracænas in form and habit, as they gracefully undulated and waved in the wind.

Signs of civilization, rising from cattle-runs, up to cultivated fields and enclosed farms, with the rather picturesque looking cottages of the settlers, began to dot the surface of the landscape, and with their pleasant and romantic surroundings, literally "made the desert smile."

We soon discovered that "keeping hotel" was not one of the lost arts, as we entered the "wattle and daub" mansion, known as the "Freemason's Hotel," and kept by a "brother of the mystic tie," one of the "favored and enlightened few," and whose hospitable acts and fraternal kindness, will ever be cherished with a warm regard.

Inviting us to a seat in his "trap," to which were harnessed, in tandom fashion, two splendid horses, which showed their colonial metal as they gallantly cantered along; and in little over an hour's time alighted at the Square and Compass Hotel, in the city of Geelong, and in view of Hobson's Bay.

PUBLIC PARKS.

BY "A LOOKER ON IN FAIRMOUNT."

It was a striking remark of a friend, when he asked, "Why is it that the best people and the handsomest trees are the scarcest?" Is it not so? Have not we Americans found the scarcity of good Legislators; and why is it we neglect our superb Gentians, or the White-wood Lily, Trillium grandiflorum and our truly elegant native Holly. The blue Gentian may be difficult of cultivation and the Holly is slow to grow and hard to move; thus they are rare and the more striking when seen, at the same time that they are the more valuable.

Of all things, our newly fledged park-makers should look after these matters. The pleasure-grounds of a hundred years hence will not contain the *Gordonia pubescens*, the native Holly or the Cedar of Lebanon, unless some good-na-

tured soul plant them now and by stealth, for it is not the fashion with us to plant for posterity, —the more's the pity. Our grandchildren will wander among deciduous Chestnuts that have lost their best features by age; but where will they find the noble Beech and its cut-leaved variety, or the magnificent native Magnolias, ten or twelve feet around the base, with their fragrant and beautiful blossoms; rather will they discover plantations of trees that worms attack, or dilapidated specimens such as our hickories are likely to present from the depredations of insects, or "Elm Avenues" loaded with small depredators.

We sadly want a Downing among our lawyer planters and engineers, whose *civility* to posterity would best be disclosed by consulting the best books and the knowing planters.

At present we see plenty of young fellows squinting through the glasses of surveyor's instruments, but the collector of fine trees is wanting, while a host of lazy "Park Guards," in uniform, are lounging about with nothing to do, and who are never to be found when wanted, and who would scorn to be seen pulling up a noxious weed, even if they knew a dock from a Camellia.

The Park Commissioners surely have the appointing power of their guard: could not this body be somewhat composed of men having a knowledge of trees and gardens? Undoubtedly this could be accomplished, and we should then hear of fewer valuable plants being purloined. At present the enormous area of the Philadelphia grounds gives great opportunity for stealing, and the poor shoemakers and the broken-down politicians who are happy in a most idle employment, are incapable of distinguishing the value of what is taken, thinking them weeds.

[The suggestion made by our correspondent, that Park guards and police should be selected from among those who have some knowledge of gardening is an original and excellent one. There are hundreds of men in Philadelphia who could be selected from this class with credit to themselves and profit to the community, and we commend the suggestion to the considerate attention of the powers that be.—ED.]

NOTES.

BY THE EDITOR.

DOMESTIC.

The use of Turpentine by Reduvius novenarius.—In the Proceedings of the Philadelphia Academy of Natural Sciences for 1870, Mr. Thos. Meehan made some observations on the use of Turpentine by this insect. In the March No. of the Vol. for 1871, Mr. Meehan has some further observations, showing that the provision of Turpentine is for the purpose of glueing the eggs together on the branch. The glueing matter had previously been supposed to be a secretion from the insect itself.

Sexual Variation without Sced.—At the March meeting of the Academy of Natural Sciences of Philadelphia, Mr. Meehan exhibited specimens of male and female *Bouvardia leiantha* from separate plants. These had been raised from root cuttings from one original plant, so that the division with separate sexes must have taken place independent of seminal agency.

Aspidum filix mas as a Vermifuge.—At a meeting of the Academy of Natural Sciences, on March 21st, Dr. Joseph Leidy referred to a case of a tape worm thirty feet long which had been ejected from the human system by the use of the fern *Aspidum filix mas.*

Symmetrical Figures in Bird's Feathers.—Miss Grace Anna Lewis, in the *American Naturalist*, details a discovery of beautiful forms under a microscope in bird's feathers. They are as varied and as beautiful as snow crystals or the frost forms on glass.

Variations in Bird's nests.—Contrary to the general opinion, Mr. Elliott Coues shows in *American Naturalist* that no pair of birds of one species build nests exactly alike. He details remarkable variations in the nests of *Bullock's Oriole.*

The Chinese Wax Insect.—T. T. Cooper in *Travels of a Pioneer*, says that a beautiful white wax is made by the agency of a species of *Coccus* on a privet, which Prof. Silliman in *American Naturalist* thinks is *Ligustrum lucidum.* Whether the wax comes directly from the privet, or is a secretion of the Coccus scale does not seem to be known. It wraps itself in these *cerements* before it dies, and the wax is boiled off of it after death.

Fungi in the Human Ear.—Many different species have been described. Dr. Karsten says the *American Naturalist* says the spores produce different forms according to the matrix on which they grow.

Vitality of the Cambium layer in Bark.—Under this head a correspondent of the *American Naturalist* notices the fact that apple trees stripped of their bark in June, will form new

wood and bark from the cambium layer. This subject was gone over in early numbers of the *Gardener's Monthly*, where it was shown that the cambium did not produce the new wood and bark. These were formed by lateral cell growth. The cambium probably nourishing them.

Thury's Theory of Sex.—It was always a mystery how Prof. Thury's theory of sex ever found acceptance with scientific men. A moment's thought of animals in a state of nature is sufficient to dissipate the notions founded on the genera cattle. Meehan's theory of sex in plants disproved it; and now, according to the *American Naturalist*, experiments have been made on the Spinage, Sorrel and other Dicœcious plants by Prof. Hoffman of Giessen. Some of the flowers were fertilized at an early stage, and others after they had been some time expanded, and the result disproved Prof. Thury's hypothesis.

Plants Growing in Hot Water.—Dr. Blake recently exhibited to the California Academy of Sciences, Diatomaceous plants taken from a spring in Nevada, the water of 160°.

Rhododendron Californicum.—Specimens of this from Southern California were recently exhibited at a meeting of the Californian Academy; flowers are described as very beautiful.

Dicentra uniflora.—This is a new species recently found in California, and so named by Dr. Kellogg. It is the smallest species yet known. The leaves and the single flower growing but about a couple of inches high.

A Foe to the Cabbage Butterfly.—J. A. Lintner, in the *N. Y. State Museum of Natural History*, notices that the *Pieris rapæ* so destructive in the caterpillar state to the cabbage crop, has met with a parasitic fly—probably *Pteromalus puparum*, which will prove a very destructive enemy to it.

Distribution of Fungus Spores by Flies.—At a recent meeting of the Philadelphia Academy of Natural Sciences, Prof. Leidy detailed some experiments with flies. Gangrened wounds are filled with fungus spores. A fly had been feeding on a gangrene spot, and he found the gangrene spores germinated from the excrements of the fly, and he had no doubt if a fly in this condition, were to alight on a healthy wound, gangrene could be communicated to it in this way. He would allow flies under no circumstances to have access to patients suffering from contagious diseases, not doubting but they were sometimes agents in spreading them through the community. At the same meeting, Dr. Parrish showed that a protozoic matter constituted the infectious material of the small-pox, and he had found that even great heat had failed to destroy its vitality. He had known the infection communicated from the burning of clothing of patients in a hospital. Possibly the fungoid matter had been driven off before subjected to the highest combustive heat. Professor Leidy stated that a heat of 140° had been found sufficient to destroy *Bacteria* and other low forms of life in water. Dr. Weir Mitchell and Dr. Parrish both thought the experiments referred to by Dr. Leidy were not conclusive.

Vitality of Pith.—In the Department of Agriculture's report, it is stated that a Mr. Gres has discovered that pith will continue its vitality for many years, often during the whole life of the plant. He says it absorbs starch and tannin during the first leafing period in spring, which it subsequently gives out for the nourishment of the plant. The details of this theory would be very interesting. There is no doubt the pith plays an important part in the vegetable economy, as when the currant borer feeds on the pith the subsequent growth is much weakened.

FOREIGN.

Polyspermous Cherries.—Dr. J. De la Harpe, in the *Bulletin de la Societie Vaudoise* of Lausanne in Switzerland, notices the curious fact that semi-double cherries, when they produce fruit, have also a plurality of ovaries—two are very common, and he has seen three or four in one cherry. He has not seen, but says Professor Schrotzler has five in one fleshy pericarp.

Picea Parsonsiana.—Mr. William Barron in *Gardener's Chronicle*, sends the Editor specimens of authentic plants of *Picea grandis* and *Picea lasiocarpa*, to show that they are the same, and of *P. Parsonsiana*, to show that this is distinct from the others. The Editor, in a note, attests to their distinctness. There has never been any doubt in this country as to the P. Parsonsiana being at least a very well marked variety.

DESCRIBING FRUIT.

BY REV. J. H. CREIGHTON, DELAWARE, O.

Much that is written to describe fruit goes for nothing, or is only enough to tell what the fruit

is not, rather than what it is. In our standard fruit books, scores of fruits are described, and true enough as far as it goes, but they very often apply to a large number of fruits of the same general appearance. For instance, *red*, *round*, *flat*, *conical*, *striped*, *yellow*, *&c.*, are properties so common that they amount to nothing. True, if enough of these common terms are given, it is made out, but when a fruit has nothing peculiar about it, like Rome Beauty apple, or Howel pear, it takes a pretty minute description to distinguish it from many others. Each kind don't need an equally minute description, for some, such as Roman Stem, has a mark which of itself is almost enough.

We suggest, that the next writer of a fruit book give us more minute descriptions of the sorts that are not well marked.

EDITORIAL.

THE CAUSE OF YELLOWS IN THE PEACH.

A very few years ago those who studied Cryptogamic botany, were looked on as little else than idlers. It might be fascinating to those who cared to look into the woudrous workings of nature in her very secret ways,—but what good to humanity could possibly come from it? What bearing had it on the great object of botany,—aiding of the pleasures, or the alleviating of the wants or miseries of mankind?

But the past 20 years has put a new face on this matter—Cryptogamic botany has come to be one of the most important of the sciences. It has added much to the value of other arts and branches of knowledge, while to it horticulture has been made largely a debtor.

Few persons and few papers deserve a higher credit for the eminent position of this branch of botany than the Reverend J. M. Berkeley and the *London Gardener's Chronicle*. It was here definitely settled that small minute fungi would attack plants previously healthy; and that a diseased condition of vegetation could be, and very often was, brought about by nothing else than by the action of these minute and frequently invisible plants. Another great step was gained when it was shown that these small moulds were of polymorphic natures. That plants of these orders, originally supposed to be of different ones, were really the same, only changing their external forms according as they fed on different substances. Thus the Berberry rust and the wheat rust were once thought to be of different families; now they are known to be the same—changing the form only as they feed on these different plants.

It was soon ascertained that a fungus which usually grows only on dead matter, would change its form and then attack living structures; and again change according as it fed on various parts of the plant. Thus dead branches in the earth will foster thready fungi,—and these striking through the earth will attack a living tree, changing its form to fasten on these roots; and then the fungoid matter will so adapt itself as to enter into the whole circulation of the tree. All this is now true scientific gospel.

Some of these facts have been known to Microscopists for thirty or forty years, and perhaps the Danish Botanists deserve some of the credit, especially in the matter of Berberry and Wheat rusts,—but it has been chiefly through the *Gardener's Chronicle* and its writers that we can apply the science so well practically as we can. Now intelligent gardeners have only to look at a diseased tree to tell at once whether it is suffering from fungus at the roots or not.

And now in regard to the Yellows in the peach tree, we are almost prepared to abandon all that we have said and written about its cause. We do know that in severe weather the interior or heart wood of trees will often be destroyed, while the external layer of wood will escape injury; and that seasons following this, the sap does not ascend freely into the damaged structure, and that weak sprouts appear on the lower portions of the branches, and also that, the whole circulation is so enervated that weaker branches and yellow leaves are the consequence. A branch which is ringed or in any way injured in the bark so as to obstruct the free circulation, also produces branches with yellowish leaves. Here are all the symptoms of the Yellows in the Peach, and thus we felt safe in believing that like effects sprung from like causes. But we

have since learned to attribute precisely the same appearance in White Pines, Hemlocks, Maple and some other trees entirely to the attacks of root fungus; and why might not it be the same with the Peach tree Yellows? On this suggestion we have examined the only peach tree with the yellows that we have had the chance to see the past year; and though not entirely satisfied with this one examination, have little doubt that fungus at the root will be found the cause of it.

And if so, this will render clear some practices that have said to result in benefit, and yet seemed enigmas to all of us who acted on other theories. For instance, some have opened shallow trenches about peach trees and poured boiling water in about the roots, and the yellows have disappeared. We have seen this, and know it to be true. We have seen trees which were yellow for years, become green in this way. But we thought about this as we thought about Farmer Sharpe and his cow. He left his scythe out in the meadow, and his cow fell over it and badly cut her leg. Farmer Sharpe remembered that on the day the cow cut herself he ate Blue fish for his dinner, and he resolved that henceforth he would have no more such accidents, for he never would eat Blue fish again. So thought we. It was no reason because hot water was poured about the roots, that the frost should not hurt the heart wood. No doubt the tree would have got well without the hot water. So, also, when Dr. Wood at the Philosophical Society had found Potash benefit the Yellows in his peach trees, we thought little of it, because we knew soils rich in Potash in which the Peach Yellows existed.

But supposing the injury to result from a fungus which fastens itself on the roots and then works its morphologized form through the bark into the structure of the tree, hot water or a heavy dose of Potash, applied as Dr. Wood applied it, would destroy the parasite, and thus produce the good results we refer to. Now, as we have said, we do not feel quite positive about all this. But we see all the effects of fungus in the yellow color and behaviour of the trees,—we have seen an isolated case in which there was fungus at the roots,—and we see in experiments which have resulted successfully how well suited they are to remedy a disease which might spring from such a cause; and we feel warranted in suggesting it for the further examination of those who are in the infected districts, where specimens for study abound.

TRAVELING RECOLLECTIONS.

Leavenworth, Kansas, is situated in one of the loveliest spots that it is possible to conceive of. For a town, it is also especially favored. A good site, a good soil; live men, live newspapers; and a generous ambition to excel in all things—what more does a thriving place want in this world? A princely banquet was prepared for us, but we needed not that to tell us of the hospitality of Kansas, for that knowledge is world wide. Enormous vegetables and fruits were spread out before us; but a Philadelphian had received pretty good ideas of these before. Even a rain was gotten up to let us know that Kansas was not a drouthy place; but no one here believed it was. But for all, it was a pleasure to meet the hundreds of intelligent men and women, so many of whom we had known by reputation so long, and with whose labors in the cause of horticulture we had been so familiar. We may be pardoned for suggesting that if ever a centre of intellect is to be established in the West, as Boston has laid claim to in the East, Leavenworth is to be this western "hub."

The Government grounds about the fort are beautifully kept, and the private residences of the officers exhibited marks of high keeping and floral taste. This was especially the case with the grounds of General Miles and General Pope. The Chaplain's garden was also particularly beautiful.

In the vicinity of the Fort, the Hon. M. J. Parrott has a beautiful country place. Mr. Cadogan, the gardener, takes great pride in the success of every thing under his care. The fruit trees were the admiration of every one. Some apples, especially Cooper's Early White, were almost breaking down with the weight of fruit. Both grass and clean culture were tried here, and success seemed to follow both. Dr. Stayman has an orchard which is a marvel. They have never had a knife to them, and the Doctor attributes much of his success to this treatment. It certainly has not harmed them, to be without pruning. Mr. Cushing has a beautiful place. The front lawn embellished with gay flowers and flower beds,—the windows and piazzas shaded with beautiful flowering vines,—and ornamental trees and shrubs judiciously arranged, made the critics of our party believe they had not much missed the civilization of the east. In the rear of the house the fruit garden rivalled that of the floral in success. Pears, peaches and apples were in suc-

cessful bearing, and the great vigor of the strawberry vines showed what had been done with them in the fruiting time.

But time and trains for no man wait. and we had to take leave of our many good friends for the more uncultivated portions of our great domain. The Union Pacific R. R. kindly placed their line at our disposal, and accompanied by Governor Harvey, Mr. Elliott the Industrial Agent, and Beverley A. Kiem, Esq., one of the officers of the road, we made across the State for Denver. The true work of the party seemed now to commence. Every thing was new. The Naturalists prepared their materials. Bottles for insects, and portfolios for plants were getting common. Enquiries by the hundred were put to everybody on the trains and in the rest of the world, and as the train kindly halted at various interesting spots so as to afford every facility for seeing and knowing all things, the pencils of the ladies and gentlemen were kept pretty busy with their notes and correspondence. In the former part of our journey, the "gentlemen of the Press" were satisfied to write to their respective papers from hotels and stopping places; but now the new matter was flowing in in such abundance, that even the rocking of the trains could not lull to sleep the busy reportorial pen. The riches of the Kansas soil, the beauties of the Kansas flowers, the sleeky stock, the abundance of the Kansas crops, the success of Kansas planted trees, the wonderful growth of Kansan towns, the superior intelligence of the Kansan settlers, these and many more substantial facts have been ere this elaborated by a score of pens, and read by thousands of readers. We need only now say that too much can scarcely be said of the merits of this fertile spot.

But we may add a word more about the tree prospects of the State. How ever the idea originated that trees will not grow in Kansas, is a mystery to us. Mr. Elliott, the Industrial Agent, has established plantations at various stations along the line, and sown seeds of many kinds of trees. Now tree seeds have to be taken great care of – young trees are almost as tender as young chickens. Yet the prairie sod was simply turned up, and the seed sown as we would grain. The young plants were left to take care of themselves, without shade or shelter of any kind, and yet many of them had lived and had made a considerable growth. In fact there is no more difficulty in growing trees in Kansas than in Pennsylvania; anything that will do well in Pennsylvania, will do here. The dry belt seems to extend east of the Rocky mountains, to a much less extent than formerly supposed. Even so far west as Ellis, but a few hundred miles east of Denver, no thought is given to irrigation, and excellent vegetable crops of all kinds are raised. The following record we obtained from the station agent, of the rains for a few months before our visit, and it ought to satisfy any reasonable rain loving man. The grain crops and garden vegetables raised here were of the most superior description.

1871 March—25th, 29th, 30th.
April—7th, 9th, 14th, 15th, 24th, 25th, 26th.
May—1st, 14th, 24th, 27th.
June—*1st, 3d, 14th, 15th, 22d, 23d, 25th.
July—3d, 10th, 21st, 27th.

Heavy dews during the first part of July.

*Accompanied with hail,

Soon after leaving Ellis night came on us, and we steamed across what is known as the Great American Desert. But even here, as we laid in our berths, by the flashes of the lightning, we could see water in the ditches across the railroad track. as if to tell us there was rain or moisture even in the great Colorada desert.

When we get over the Kansas line into Colorado, rain is very uncertain. The prevailing winds are from the Pacific, and the clouds borne by them are borne against the high peaks of the Rocky mountains, and the moisture they contain there condensed. Thus when we reached Denver, the capital of Colorado, and a city of about 4000 persons on the base of the eastern slope of the Rocky mountains, it was found that no attempt was made to grow anything without irrigation. The water for this purpose was brought many miles away fram the Platte river higher up in the mountain, by a joint stock company,—the cost to the consumer of the water varying from about a dollar and a-half to five dollars per acre. Most of us have understood how gardens and small lots of garden crops could be grown by irrigation; but it was a novel sight to see acres of grain and grass raised in this way. The crops are much better than under our system of culture, because the water is completely under control. It was evident, however, that this application of water was not properly understood, and some things were injured by too much of it. Some grapes in fruit, especially, indicated this. The proprietor was proud that he

had raised any grapes at all here, but he will be more proud when in the future he raises larger bunches by a better knowledge of irrigating treatment. Some one near here has grown dwarf pears long enough to fruit them, but of these we did not see the fruit. But some cherry trees were doing remarkably well. All the wild plants about here had roots growing very deep in the soil.

Our collections of plants we have not had time to name, but we traced the roots of a small *Evolvulus* growing not more than six inches high, down eight feet in some soil that had been washed away. The beautiful *Ipomea stenophylla* growing as a perennial herbaceous bush, with crimson flowers the size of wine glasses, also had its roots of an immense depth; and so of the *Grindellias*, and many other aster like plants which constitute the flora of this region.

The introduction of tap rooted vegetation will be a great boon to this country. The shade trees along the streets are watered for a year or two. They are at present confined to the Carolina and Willow-leaved Poplars, and the Ash-leaved Maple or Negundo. The Denver people are a remarkably live and enterprising set, and have planted out many thousands of these trees the past season. The Editorial party were handsomely received by Governor McCook, gentlemen of the Agricultural Society, and leading citizens of Denver, and a vast amount of information received from them in regard to the resources of the territory, which could have been acquired in no other way.

From Denver the immense hills, usually snow capped, but this season nearly bare, reared their summits to the clouds in every direction, west, northwest and southwest of us, and we prepared for a few weeks departure from civilization by laying in a stock of blankets, potatoes, bacon and beans, and such other hard life kind of fare as mountaineers are supposed to grow fat on. Our teams, drivers and guide being secured, we mounted our wagons one fine day in August, and with a 100° sun over head, and a carpet of cactuses below, we toted ourselves off slowly behind the animals which after a few hundred years more may become developed into horses, in the direction of the Golden Gate.

Still civilization went out with us to say goodbye, for here and there would be a field fenced in by pine posts and horizontal wires, which, where not given up too much to the Prairie Sunflower, showed good crops,—and above all we were astonished when civilization made its last bow to us in the shape of a mile race track which was being graded This night we took our first sleep in these "rock ribbed" hills.

SCRAPS AND QUERIES.

GOOD TEMPER IN HORTICULTURAL CRITICISMS.—It has been the aim of the *Gardener's Monthly* to infuse a more generous spirit into horticultural criticisms. Some years ago Mr. Elliott went to Detroit to see a strawberry, and was roundly abused for the opinion he gave of its merits. The Editor of this journal also went to Detroit, and saw that all Mr. Elliott said was true, and we defended the honesty of his opinion with what ability we could command Yet to this day Mr Elliott is classed by some writers with those who seeing no more money in it, say nothing about it (see "Judd's Horticultural Annual"). Whether the ability with which we defended Mr. Elliott's statement of the facts exhibited an intelligence of one-fourth, one-eighth, one-sixteenth, one-thirty-second, or one-sixty-fourth of that which Mr. Elliott possesses, does not seem much to the purpose; but when we found Mr Elliott, as we thought transgressing the bounds of good temper under similar circumstances, it seemed but proper to say so. Hence our remark at page 370, December No., that it was to be regretted his valuable experience and opinions were marred by reflections on the honesty of others. We do not mean to say that Mr. Elliott did not write in good temper, but that we thought he did not. We may have been mistaken. Mr. E, however, chooses to show conclusively, that he can write in the best of temper and spirit on horticultural subjects; and so especially in view of his terrible threat, we give his communication below.

THOMAS MEEHAN,

SIR: "Enclosed I send you an article in reply to your small criticism on me.

I also enclose one-half dollar to pre-pay postage should you decline to print.

I ask either that my response be printed or returned. In the latter case, it will be wide spread —in the former, unless your egotism comes in again, this will end it. You have attacked me unjustly, and without thought."

Respectfully,

F. R. ELLIOTT.

CLEVELAND, 11*th Dec.*, 1871.

EDITOR *Gardener's Monthly*,

SIR: "The copy of your journal for December is before me, and I note your remarks relative to my notes on the notices of grapes. I have looked over my notes, and I fail to find a single stigma or personality connected therewith, against any one,—beyond the tradesman's occupation; and I fail to see wherein it is more reprehensible to note a man for an injury done to the public for his own pecuniary ends, than it is to comment favorably on a variety just introduced, and so give the public undue desire to purchase and plant of that of which we know really nothing, and that in due time will result in injury to the planter rather than to his benefit.

You, as well as myself know that we are yearly overwhelmed with new things (so called) of extra value, and so long as conservative editors minister without a word of comment, the public buy and plant, pay money to meet the tradesman's wants, at a sacrifice to themselves in the future results. But because I choose to condemn this item, as connected with the tradesman, for in no other way have I touched it, you editorially, egotistically, propose to direct personal attention to me as antagonistic of the end toward which, it seems to me, every true pomologist or florist should exert himself, and to call out and destroy all that tends to militate against progress. Botanically, I have no opposition, nor do I lay claim to or with your powers; but if you had ever had one-fourth the experience that I have had in pomology, or the sixteenth part of the love and devotion to the subject for the public's good aside from personal interest or pecuniary reward, you would never have assumed items of knowledge belonging to men who wrote long before you was known, nor would you assume to direct in matters of which, strictly, you know nothing.

F. R ELLIOTT.

THE PENNSYLVANIA FRUIT GROWERS' SOCIETY.—The *Horticulturist* did no more than justice to this modest working State Society, when it compared its usefulness, in a recent number, with the American Pomological Society. President Hoopes is not much for clap trap, but he goes in for real useful work. We need not say to the hundreds who have attended the few past meetings, that it is their loss if they do not attend. But we can say, truly, that no fruit grower ever attended who did not want to go again. President Wilder will be there this time, also Fuller, Downing, Barry and we believe a very large number of leading and well known pomologists. They meet on 17th and 18th of January, in Horticultural Hall, Philadelphia.

AN AGRICULTURAL PAPER.—A Maryland correspondent suggests that it would add to the attractions of the *Monthly* if we would give some attention to agriculture as well as horticulture; but we should have to double the price if we did, and this is not necessary. A paper like the *Country Gentleman* fills every want of this kind, and the two together make this double price. Moreover, we doubt whether any talent the proprietors of the *Monthly* could in any way employ would compete with the *Country Gentleman* in value.

TRANSMUTATION OF CORN.—Those who believe wheat will turn into chess, have had much to aid them of late.

A wonderful instance of vegetable transmutation is mentioned by a correspondent of the Iowa *Homestead*. A farmer purchased of a tree peddler fifty different varieties of apples for a large orchard. In a few years these apples resolved themselves into only two kinds.

THE BOTANIST OF THE AGRICULTURAL DEPARTMENT.—A discussion is going on in the New York papers in regard to the dismissal of Dr. Parry from the charge of the the National Herbarium. The *Rural New Yorker* remarks, that judging from the recent report of the Department, Dr. Parry has done nothing the past year. It has probably overlooked the fact that this report, though appearing December, 1871, is for the *year ending December*, 1870. Dr. Parry has been held in the highest esteem by all our leading Botanists, and there is not one that we know of who does not regard the dismissal of Dr. Parry as unfortunate for the interests of the National Herbarium.

GOOD ENGLISH GARDENERS.—It is often a matter of regret, that some means by which first class gardeners and those who want them can be brought together is not devised. As it is now, there are many gentlemen and ladies in America who want these men, but they are unable to distinguish the man of merit from the pretender, and thus the good gardener shrinks from competing with quackery, and he gets into some other business, to the great injury of American horticulture. Friends sometimes apply to the Editor, but he has no time for it; and yet it is not without regret that he feels he cannot aid men when they seem worthy of encouragement. There are few men more to be esteemed than the devoted gardeners of Great Britain and Ireland, who have given themselves entirely to their profession. The nature of their employment leads them to cultivate forecast in such a way that in practical judgment, to suit emergencies, many of them excel any other class; while their very intimate and close relations with the most refined and cultivated classes of their country, gives them a taste for learning, and a polished, gentlemanly bearing, which makes them always welcome in any society. We wish something could be done to give the worthy members of this class a clue to their proper places here.

Below is a letter from one whom we do not know, but which bears marks of character. After speaking of a circumstance which he thought would justify him in writing to us, he proceeds:

STONELEIGH VILLAS,

ERITH, KENT.

"I am a gardener—more or less of a good one—and went out to India some seven years ago, where I was successful enough in my employer's behalf, earning for myself what has proved to be rather an empty reputation, as a Tea planter; perhaps I should not say *empty*, however, as the chief bar to my going out again has been my determination to reject all but the most healthy localities, and these are not plentiful in India. I have had one or two very good offers in Assam, but in the interest of my health and that of my wife, I have not accepted them. The consequence of being here almost unknown, has been that I have had to supplement my scanty earnings in the gardening line with my Indian savings,—which savings are quite exhausted, and the time has now arrived for me to obtain some more remunerative place, either here or abroad; I should prefer, if it could be, abroad. This brings me to the immediate subject of my letter to you. I feel a natural embarrassment in asking the question of a gentleman who is a stranger to me, but I wish to know what prospects I should have of being engaged here, for a garden in the New England States say; or if you could put me in the way of one? A short time ago Dr. Hooker recommended me for a place advertised in the *Chronicle*, and I hoped to get it, however I did not, so I suppose some one was fortunate enough to be better known than myself. The salary, if I remember aright, was £200 per annum with house; is that a good salary for the U. S.? I mean does it represent £100 here.

I am known to several parties here in the scientific world, indeed I have been a gold medalist in connection with Tea, three or four times, and a prize essayist, &c.; but I prefer to base my claims upon practice, and I am, moreover, disinclined to trouble these parties, for I know they are seldom able, if even willing to help a man who has lost his money."

NEW FRENCH PEARS.—We noticed the Beurre de L'Assomption and other French pears recently, and are pleased to note that one of our advertisers, Mr. P. H. Foster of New York, is already able to offer some for sale. Mr. F. has also some new apples and peaches to offer.

IMPROVED CHURNS.—As a general thing, horticulturists are ahead of the mere agriculturist in everything relating to progress, but once in a while they get behind. In a visit recently made to one of our leading horticulturists, he took us to his dairy establishments to see his imported short horns. They were beauties; and yet in a corner were a couple sweating over an old wooden churn of the past age. We should expect, with so much money for improved stock, to see a Blanchard or some other improved churn,—but so it goes sometimes.

CURIOUS SPORT IN GRAPE FRUIT.—With some excellent grapes, Mr. Blodgett sends us the following note: "Though possibly too late to accomplish my purpose of illustrating the point properly, I venture to send you samples of the Roger's grapes,—those of No. 9, cut this morning, Nov. 28th, from a vine bearing very heavily, and all the fall hanging with fine grapes almost by the bushel. I think the capacity of this

grape to hang well in this most destructive climate a valuable feature. Up to Nov 15th, the quantity of perfect grapes hanging was great, and I then intended to send you some. They were ripe about the middle of September.

The Roger's No. 1 was also very prolific, the feature of interest with them this year was the variable form they took in ripening; some large, white, fleshy, and markedly after the European parent, while others were small, round, bright crimson and much like No 9, only more delicate and tender. The crop also was very large, and most beautiful grapes hung perfectly until Nov. 15th. Both these varieties are very productive and valuable with me, with a very strong and hardy growth of vine in both cases. I have not cut them back much in either case, and the only difference I observe is that I get a much a greater quantity of grapes, and shoots of 20 to 25 feet in length on No. 9 which maintain themselves perfectly and bear profusely.

I do not wish myself to be responsible for this violation of all rule in growing grapes, I beg that it will be charged to this strange excess of strength in the Roger's stocks, which I simply let alone."

INCREASE OF PINE STUMPS IN GIRTH AFTER BEING CUT DOWN.—This is an accepted fact by many very intelligent men. That they will live long is certain,—that they increase in girth we doubt. Has any one ever tried by actual measurement how much these stumps increase in girth from year to year?

THE WESTERN RURAL, has not long remained in the funeral urn in which the Chicago fire placed it. It has rose again as brilliant and beautiful as ever. This is the more to be admired, as Mr. Lewis, the proprietor, lost every material thing he had in this world. The spirit only was left,—but the spirit conquered.

MARECHAL NEIL ROSE.—*J. W. W., Washington Heights, N. Y.*, writes:—"In passing through Mr. Buchanan's greenhouses at Astoria a few days ago, I noticed what I thought a pretty fair specimen of the above rose,—out of curiosity I measured it; it was budded on a French briar about 5 years ago, the vertical branches are from eleven to twelve feet, the horizontal or lateral measurement 50x11 50 feet. The plant is in good health and well furnished with flower buds. Can this be beat outside of New York; if so let the public hear of it."

[Marechal Neil ought always to be grafted on a strong growing root to do its best. The Manetti throws up too many suckers. The Prairie Roses makes the best roots for this purpose.]

THE CODLING MOTH.—In describing Mr. Wier's trap, in our report of the American Pomological Society's meeting at Richmond, we inadvertently used the expression, that the insect "deposited its eggs in the shingles." Of course the Codling Moth would not deposit its *eggs* in a shingle or anywhere else but in the apple fruit. It is only after the egg hatches and leaves the apple that the larvæ goes to the shingle to prepare for its next stage. As we compared the shingle plan with that of wrapping hay bands and woolen rags about the stems of trees for the "worms" to crawl into, we hoped our error would readily be seen; but as we see our friend Dr. Hull, of the *Prairie Farmer*, does not, and is sharply criticizing Mr. Wier on account of our slip of the pen, it is best that the error be formally pointed out. It is not the Codling Moth which deposits its eggs in the shingles, but the larvæ of the Moth which deposits themselves there. These errors are annoying, and calculated to mislead beginners in entomology, though no one who knows could go wrong, and we are glad Dr. Hull has offered us the opportunity to correct.

MULCHING FRUIT TREES.—"*Fruit Grower*," *Plymouth, N. C.*, says:—"I understand you to recommend the use of grass about apple trees, in order that the soil may be kept cooler and the roots nearer the surface, which you think essential to healthy growth; but would it not be better to mulch under the trees with heavy vegetable material, of which I can get an abundance about here."

[By all means. This is the perfection of good culture.]

LINARIA CYMBALARIA.—*E. E. B., Dover, N. J.*:—"Will you be so kind as to inform me in the next number of the *Gardener's Monthly*, the botanical name of the Kenilworth Ivy? I enclose a leaf and flower."

[This is allied to the Snap Dragon or *Antirrhinum* family. The botanical name is *Linaria cymbalaria*. It is called an Ivy because of the resemblance of the leaf, though small, to the leaf

of an Ivy, and also because it grows in and over old ruins in Europe, as the true Ivy does and in company with it. It is called Kenilworth Ivy because those who introduced it first to America brought it from the ruins of the famous abbey of this name in Yorkshire. But it grows in old mortar on all kinds of old walls and ruins all over Europe.

FRUIT TREES IN GRASS.—*Dr. Thompson, Warren, Md.*, writes: "When is the question of grass or no grass for fruit trees to be settled? The finest and most prolific of my pear trees are in heavy grass sod. They get, every winter, a top dressing of coal ashes, on which kitchen and chamber refuse is thrown."

[The question will be settled as soon as some writers understand the difference between mulching and top dressing,—and "neglecting trees in grass."

It is amusing to see our contemporaries continually quoting cases where some one has a "neglected tree in grass," which did not grow half as well as one in clean manured ground. Any child in gardening would know that.]

RIPENING OF THE VICAR OF WINKFIELD PEAR.—*M., Salem, N. J.*, complains that "a few years ago his Vicars were of better quality than they have been the past five. Can any reason be given for the change?"

[Probably the leaves fall before the fruit matures, in which case the flavor of any fruit is effected.]

THE HOWELL AS A DWARF PEAR.—*M., Salem, N. J.*:—You must have been misinformed. The Howell does well equally as a standard or a dwarf.

SWEET RHODE ISLAND GREENING APPLES.—"*Orloff*," *Elmira, Pa.*:—"I send you with this, half a dozen sweet apples They were taken from a tree planted for Rhode Island Greening. It cannot be this kind, as it is sweet. What kind is it?"

[It is nothing but Rhode Island Greening. It has been before noted in this magazine, that this kind will often produce sweet fruit.]

VIOLET MARIA LOUISA.—*J. C., of Carroll. Baltimore Co., Md.*, sends a beautiful bunch of violets, and says:—"I send you by mail, to-day, a plant of Viola odorata, Maria Louisa, and a bunch of flowers of the same. It is a good bloomer and a very robust grower. Please let us know in the *Monthly* what you think of it."

[Think admirably of them. Large, very double and very sweet, with nice long stems. The beautiful violet petals have a large blotch of white at the base, which adds to their interest.]

THE AMERICAN ENTOMOLOGIST.—We have the following note from Mr. Riley: "I regret to inform you that, contrary to the announcement a year ago, this magazine will not be continued during the coming year. The cost of publishing a paper so profusely illustrated with original figures is great, and the publishers, Messrs. R. P. Studley & Co., have lately concluded to discontinue it. as they have not met with sufficient financial encouragement I have, however, since they so decided, purchased from them all the illustrations and all interest in the magazine, and hope at no very distant day to recommence its publication myself. Meanwhile, I take this means of thanking the many subscribers who, during the year, have sent in expressions of encouragement and appreciation, or who have signified their intention of renewing subscription. I shall ever be glad to hear from them on entomological subjects, and to render them what little service lies in my power."

LAXTON'S PEAS. For some years past Mr. Laxton, who is an English gentleman devoted to horticulture, has occupied himself in improving the Pea by crossing and natural selection. The English papers all testify to his great success. One of his varieties has produced peas *seven inches* in length. Our climate is not so favorable to the pea as that of England; but if it should, as it no doubt would, yield here pods five or six inches, it would be an addition to our varieties all would value.

A full account of these peas were given in our last months magazine,—the English papers speak of them in the highest terms of praise, and they will no doubt be extensively tried in our own country.

As a general rule peas are not sown early enough with us. A little frost will not hurt them; and here in Pennsylvania, if the ground is open in February, they might be sown to advantage; and in the South, November is as good a time as any.

AN ORANGE AND LEMON ORCHARD.—*W. H. H., Los Angeles, California*, writes:—"I am al-

ways interested in any thing relative to orange culture. I have here an orchard of 60 acres, planted now 18 years. There are 500 sweet orange and Sicily lemon trees, and they bear well every year."

THE publishers of the *Gardener's Monthly* desire to return thanks for the promptness with which so many have renewed their subscriptions for the new year; and not only for this, but for the numerous expressions of good-will which so often come with the subscriptions. Thus Dr. Wise of the "Methodist Book Concern, New York, writes," I always take great pleasure in the *Gardener's Monthly*. I take it and also Shirley Hibberd's *Gardener's Magazine* from London,"—and the Rev. Henry Ward Beecher writes, "others may know of a better horticultural magazine in America, I do not. I plant Meehan for a full crop of reading every year."

RIBES SANGUINEA IN OREGON.—A member of the family of Bishop Morris of Oregon, writes: "Early in February our woods are gay with the pink blossoms of this beautiful currant,—they continue in blossom successively till June. The shrub reaches sometimes 6 feet high, and the effect is as if it were covered with pink verbena flowers, though of course differently arranged, as they are in drooping racemes.

The growth of plants here is astonishing to an eastern eye. A Cloth of Gold rose, planted last March—8 months ago—has a shoot 8 feet high, and as thick as my thumb, and is, as are all our roses, literally an *evergreen*. A Wisteria, planted a year ago, has now reached the top of our two story chapel, and will soon mount the tower."

A DENDRO-POMOLOGICAL GARDEN, at Berlin has been recently noticed in the London *Gardener's Chronicle*, as somewhat of a novel idea.

Mr. Wm. Saunders projected a similar arrangement in Washington some years ago, and we believe it is now being energetically carried out.

APPLE SEEDS SOLD FOR PEAR.—Mr. Raoux assures us that it is becoming the practice with some swindling concerns in Europe, to dye apple seed the color of pear, and then sell. This season especially the temptation is great on account of the scarcity of pear seed. It is fortunate perhaps that it is not worse than this, with pear seed at $4 per lb., If it were Connecticut folks instead of French, we might have the seeds made out of harder stuff than apple, unless the wooden nutmeg story is baseless.

THE WHITE CRAPE MYRTLE.—This rare novelty, so long supposed to be a myth, has turned up at last. Mr. Buist is the fortunate possessor of plants for distribution.

BOOKS, CATALOGUES, &C.

THE ART OF BEAUTIFYING SUBURBAN HOME GROUNDS OF SMALL EXTENT. By Frank J. Scott, New York. D. Appleton & Co.

It is said of Americans, that they do not appreciate art; particularly are they supposed to be indifferent to Landscape Gardening. But it is not true. Few people enjoy art more; and the art of Landscape Gardening, when it is true art, never fails to receive the devotions of sincere worshippers. Our want is not a love of art, but of artists. When the real genius is raised up for us, and is able to breathe around us the true spirit, the inspiration is rapidly communicated, and tasteful gardens abound.

Nature does not select the repositories of her gifts from any one class. Now and then she singles out a man of commanding influence, endows him with powers far above the average, and she sends him forth, a beacon light in art, to guide all men. But then she favors as frequently the unlettered and unknown, as also fairly educated men who have not the force of character to make themselves known beyond a very limited circle. The few know them, but the great world does not. Around all our large cities we find these men, and we see that in their limited circle their works are known and appreciated. The writer of this sketch has often enquired for the author of some exquisite little gem in garden art, but it was found to be only "some English gardener" who was employed there some years ago,—or a "Scotchman of considera-

ble intelligence;" perhaps "a young Irishman from Dublin," or a "German florist brought over by Judge Brown,"—but their names were "wrote in water." Still—and here is our point—the good seed grew. Rarely, indeed, are such instances of correct taste seen, but imitators in comparative abundance abound. And then, when the hero in art comes, see how many thousands of American hearts he carries captive. No Prophet in Israel commanded more regard than Downing did from us. Hundreds of homes, and hundreds of grounds which were to become homes, were fanned up into a blaze of beauty by the breath of his lips, or a little waving of his magic pen. And when he left us, hundreds of eyes that never beheld him in the flesh, were moistened, and hundreds of hearts well knew how great a loss was theirs!

All this is but the history of yesterday; and it proves, as nothing better can, how great is the love of Americans for the beautiful in gardening art when only the living teacher is found; and it offers the highest encouragement to those who feel the afflatus prompting within them, to speak out and not be afraid.

Only that we feel and know the truth of what we write, we might doubt the success of such a magnificent effort as this before us. Six hundred and twelve pages profusely illustrated by the most beautiful engravings, and handsomely bound in green and gold,—these in itself constitute a worthy tribute to so commanding an art, and a tribute, if we mistake not, such as never before has been paid to Landscape Gardening on this continent.

To give our readers some idea of the nature and scope, we give the table of contents:

Introduction on Suburban Home-grounds; Art and Nature; Decorative Gardening, what Constitutes it; What kind of Home grounds will suit Business Men, and their Cost; Suburban Residences compared with Country Places; Building Sites and Ground Surfaces; Dwellings, Outbuildings and Fences; Neighboring Improvements; Materials used in Decorative Planting; Faults to Avoid; Plan before Planting; Walks and Roads; Arrangement in Planting; Relative Importance of Lawn Trees, Shrubs, Flowers and Constructive Decorations in the Development of Home Pictures; The Lawn; Artificial Adaptation of Shrubs and Trees; Plans of Residences and Grounds; The Renovation of Old Places; Flowers and Bedding Plants and their Setting; The Philosophy of Deep Drainage and cultivation, and their relation to the growth of trees, and the successful cultivation of those which are half hardy, together with suggestions for protecting young trees in winter and summer. Part 2d, Trees, Shrubs and Vines. A comparison of the characteristics of trees, description and order of arrangement, deciduous trees, deciduous shrubs, evergreen trees and shrubs, vines and creepers, appendix and index.

This reference to the contents will give a better idea of the book than extracts from the pages which we are strongly tempted to give, and to which temptation we might perhaps yield for all, did we not feel that all interested in Landscape Gardening will procure the book itself. The price is eight dollars, but even with this the purchaser will feel himself indebted to author and publisher. Certainly we must speak for American gardening, and return thanks in its behalf. It marks an era in our literature of which we may well be proud.

In a work so honestly original,—so truly the author's own as this one is, it would be marvellous if there were not some inaccuracies on which a fastidious critic might dwell. It is not among the least of the merits of this work that its typographical errors are few, and its errors of fact or opinion so light that no one will be injured greatly by their occurrence.

We have heard it suggested that such a great work as this will never reimburse those who issue it for the great labor and expense of getting it up. But we have testified to the wide spread love of true art in the American breast; and we shall be much disappointed if the publishers do not find for it a very heavy sale.

THE SUBTROPICAL GARDEN, OR BEAUTY OF FORM IN THE FLOWER GARDEN. By Wm. Robinson, F. L. S., with Illustrations, London. John Murray, 1871, 2d notice.

Mr. Robinson is the apostle of a new move in the British Garden, and we trust the influence of his good taste will reach America. We have been too long the imitators of the new fangled rush for long arms of mere color; ribbon gardening, as it was called a few years ago, has usurped nature; the Englishman was persuaded that unless his eye was blinded by long vistas of scarlet he had no garden at all. The late visitor to suburban places in Great Britain, which were most likely to be in "Wellington Street" or "Prince's Terrace," was struck with a small building half the size of the parlor of the proprie-

tor for the purpose of propagating bedding plants. "Ah! gardener" you would say, "you seem to be very successful in producing border plants, with such a small house, too!" "Yes, I raised in that little bit of greenhouse ten thousand Tom Thumb Geraniums last winter; you see the result, and such a blaze." "But how did you manage to repot and preserve so many in such limited quarters?" "Oh, I never potted them, just stuck in all the cuttings I could get, by the hundred, in smallish pots, and planted out from them." Go into a dozen or two neighboring gardens, and the same thing is found; the rivalry being always who could produce the greatest number of Tom Thumbs and his class, in the smallest accommodations. The result—a great show of the several approved colors streaming about like great muddy rivulets.

This fashion invaded our country, and Mr. Robinson's better taste has just come to cure us of an error which we were rapidly falling into. The system of garden decoration. he says in substance, popularly known as subtropical, simply means the use in gardens of plants having large and handsome leaves, noble habit, or graceful port. Their use has taught the value of grace and verdure amid masses of low, brilliant and unrelieved flowers. Nature teaches a very different lesson from *mere* ribbon gardening, in displaying the beauty of vegetation; the love of rude color has led to ignoring the exquisite and inexhaustible way in which plants are naturally arranged. In a wild state, brilliant blossoms are usually relieved by a setting of abundant green; pointed grass and other leaves tone down the blaze of color. "Nature has no bedding system, wild vegetation mainly depends far its attraction on flower and fern, trailer shrub and tree, sheltering, supporting and beautifying each other, so that the whole array has an indefinite tone, and the mind is satisfied with the refreshing mystery of the arrangement." This is very happy language, and very true; and he adds, that nature's laws should not be violated, as is done of late by so many of our flower gardeners, who do not study interest and variety. Who would not prefer to see the beautiful and aspiring Cannas in their variety, intermixed, than whole perches of single and double high colored flowers. Selection of the most beautiful and useful from the great mass of cultivated is one of the most important duties of the horticulturist, unfortunately. We cannot, in all our climates, make Mr. Robinson our guide, though his book is so valuable that a discriminating writer, with American experiences, might do a great favor by adapting it to our wants.

The author gives great credit to the Yuccas, much neglected and highly ornamental evergreen plants, which are hardy and have no competitor for beauty when in bloom. The Pampas Grass, the Arundos conspicua and donax, Rheum, Emodi and the Ferns should be associated with Thujas, &c., "to carry the eye from the minute and pretty to the higher and more dignified forms of vegetation." "By associating with hardy plants, house plants that may be placed out in summer, we may arrange and enjoy charms in the flower garden to which we are as yet strangers, simply because we have not sufficiently selected and utilized the vast amount of vegetable beauty at our disposal." Permanent leaved subjects, that stand out in summer, are the best for those of limited means to vary their walks and lawns with, of these there are not a few that may be housed in barns or old stables, and a very good and very economical greenhouse may generally be improvised by simply placing a glass frame inside a cellar door, the latter serving for complete protection during snow or extreme cold; it will be best, however, on the sunny side of the house; here Dracænas and their congeners, Camellias and so forth, flourish and bloom in perfection, and a box of violets and the other favorites of the family may be safely trusted. The flower garden or pleasure ground will be vastly benefited, too, when these can be safely removed to the open air, as we can do much better in the American than in the English climate; as our author remarks, we do not want purely "sub-tropical gardens," or "leaf gardens," or "color gardens," but happy combinations of the materials at our disposal. Everybody is delighted when they see traces of natural beauty and variety. If one visits a cultivated place, we should be able to take away in memory some novelty in vegetation, or some remembrance of a happy combination.

If the fine leaved plants are associated with the flowers, a Canna or Wigandia placed in the centre of a bed and surrounded with gaily flowering subjects, if combinations of the innumerable variety which can be made were more common, we should have any amount of graceful bouquets simply made. We are glad to find Mr. R. recommends the Hollyhock in a group surrounded by a graceful ring of Cannas or other tall and vigorous objects. A few heads of

the Tiger Lily, (Fortune's, if to be had) "rising like the candelabra above a group of Cannas, would form one of the most brilliant pictures ever seen in a garden, and any one with even a slight knowledge of the Lily family, may imagine many other combinations equally beautiful and new.

We have but indicated Mr. Robinson's ideas, and would refer to the book itself for the plans which are, we hope, to much change the aspect of the gardens on Victoria Place and Alfred terraces, as well as in our own.

NEW AND RARE FRUITS.

NEW FOREIGN PEARS.—Among the pears in the magnificent collection shown at the great Fruit Show at South Kensington, by MM. Baltet, of Troyes, the following new pears are worthy of special notice. For the particulars given we are indebted to M. Ernest Baltet:

Beurre Baltet pere.—A large fruit, of excellent quality; ripens in November. Raised and sent out by Messrs. Baltet.

Comte Lelieur.—A delicious fruit, ripening from September to the beginning of October. Raised by Messrs. Baltet.

Beurre Lade.—A fine fruit, in form like Bon Chretien; flesh juicy, finely flavored; ripens from October to December.

Auguste Mignard.—A large and fine pear, ripening in November. The two last mentioned pears were raised by the eminent Belgian pomologist, M. Gregoire-Nelis, of Jodoigne.

Beurre Van Driessche.—Large and fine; fruit ripening in winter.

Calabasse Oberdieck.—A beautiful elongated pear, with melting flesh of first-rate quality. It is named in compliment to the celebrated German pomologist.

Incomparable de Beauraing.—Raised by M. Gregoire. A large pear, having the shape of Beurre Diel.

Souvenir de Leopold 1er.—One of the most remarkable pears raised by M. Gregoire. This was the largest pear exhibited on this occasion, and is of good quality.

Sucree de Montlugon.—A large and fine pear, very productive. A good variety for market purposes.

Fondante Thirriot.—A fine pear, of French origin, of excellent quality, and produced on a very free bearing tree.—*Gardener's Chronicle.*

ST. CRISPIN PEAR.—This is a variety of pear recently introduced, of size like unto the Bartlett, of better quality and ripening just after Bartlett and continuing a month or more, thus filling a want of the people for continuance of Bartlett. He who plants of it, will win pecuniarily.—ELLIOTT.

PETER WYLIE GRAPE, No. 1.—*Parentage: Female—Halifax and Foreign, No. 1. Male—Delaware and Foreign, No. 8* } *No. 1.*

The first is an oblong blue grape, the latter a dark red grape.

This hybrid bore, when three years old, for the first time in 1867. In the spring of 1868 it was almost destroyed by cattle, so that I had to reinstate it from cuttings. It was one of the most rapid and vigorous growers of about fifty of the same cross in the same nursery row. I have now several fine vines just coming into bearing, one (the oldest) of which bore a heavy crop this season.

The vine is one of the clearest from mildew and rot, entirely native, in appearance vigorous and short-jointed; holds its leaves late; is perperfectly green now, (October 1st).

This summer was very unfavorable in this region for the grape; the constant showers in June, with hot days and cold nights, caused most of the common kinds to rot; the Herbemont and Lenoir with me all rotted, not even leaving one full bunch, while only a few bunches of this on the most exposed parts of the vine rotted.

Fruit, (medium from four to six-eighths of an inch in diameter;) bunches, small or medium, (between size of Catawba and Delaware;) color, when about ripe, greenish; when perfectly ripe, a rich, yellow, transparent color; sweet, juicy, but few seeds, only a trace of pulp, and to my taste of a decided Frontignac flavor; I will venture to say, that in sweetness and rich Frontignac flavor, it has no equal in America, in outdoor culture.

It ripens among the very first, hence it was impossible to save perfect specimens for the late American Pomological meeting at Richmond, but still the committee, composed of the first pomologists of our country, spoke in the highest terms of it. I have noticed that after hanging ripe a long time on the vine, it loses almost all its musk or Frontignac flavor, but none of its sweetness. I think it would make a fine raisin. —A. P. WYLIE, M. D. in *Rural Carolinian.*

LANIER APPLE.—This new seedling apple was exhibited at the Cotton States Fair in 1870, and again in 1871, and attracted much attention. Its principal merits are large size, fine appearance and good bearing qualities, as we were assured by the originator, Mr. Thomas P. Shaw, of Edgefield, S. C. The tree is some 15 years old, very vigorous grower and of good habit.

Fruit large to very large, oblate and always regular. Skin yellow, thickly streaked with carmine and with a purplish carmine cheek, a few green blotches near the base. Calyx small, open, in a shallow and regular basin. Stalk short, slender, set in a deep cavity. Flesh crisp, brittle, sugary, rather coarse grained. Quality good. Maturity end of October to end of November.

NOTE.—In closing the quality of fruits we follow the rules adopted by the American Pomological Society, viz: "Good, very good and best."—*Farmer and Gardener.*

SOULARD CRAB APPLE.—The Soulard apple is a variety originated at Galena by Mr. Jas. G. Soulard, for forty-five years a nurseryman and orchardist in the West, and the first President of the Jo Davies County Horticultural Society. The Soulard apple has been grown and fruited many years as far north as St. Paul, and its hardihood is established beyond all question. As a dessert fruit, the Jo Davies County Horticultural Society voted unanimously that it was the best of any known variety of its season—a compliment paid no other sort.

THE NARRAGANSETT RASPBERRY.—The Narragansett is a seedling from the Brinckle's Orange, and is six years old from the seed, having been in bearing four years. It bears luxuriantly, the berries averaging much larger than any other variety. The fruit is cone shaped, of an excellent flavor, the color bright crimson, bearing carriage better than any of the favorite market sorts. It belongs to the everbearing family, producing fruit on the new canes which come up in the spring, thus carrying the crop along until the last of October, or until the frost kills the foliage and green fruit. The canes are large, growing on good, rich ground, which they require, six or eight feet high. They are perfectly hardy, but it is better to mulch them in the fall with long stable manure, and lay them down, giving them some protection, such as will save them from the cutting winds, and yet not exclude the air. In the spring, after being taken up and tied to stakes, the ground should be thoroughly forked over, cleaned out, and kept clean throughout the season. This treatment is equally essential in the cultivation of any raspberry if an abundant crop and rich flavor are desired. This variety first appeared in the garden of Mr. John F. Jolls, of Providence, who is well known as one of our most constant and successful exhibitors at the horticultural exhibitions, and as a keen and active amateur gardener.—*New England Homestead.*

THE LIEB CHERRY.—This cherry was brought from Germany twenty years ago, and was planted on one of the highest points in Galena, where this tree has withstood extreme cold winters without injury, and has never failed to produce an abundant crop of fruit, (except when the blossoms are destroyed by the late spring frosts). The fruit is very large, of a crimson color, nearly sweet, while the flavor is not surpassed by that of any other cherry. It ripens within a few days of the Early Richmond, and the fruit has never failed to bring 25 cents per quart in the Galena market. It has been named and recommended by the Jo Davies County Horticultural Society, also by Robson, Soulard, Kittoe and others.—H. G.

SMITH'S FAVORITE APPLE.—Mr. Alfred Smith of Monmouth, sends us a specimen apple of a variety known as "Smith's Favorite," which originated in Winthrop. Concerning its history he writes: "The seed was planted by the first settlers of Winthrop, about one hundred years ago. It grew on a farm formerly owned by my father, Isaac Smith. The tree was vigorous and a great bearer, and would probably have lived a hundred years longer, had it been cared for and properly mulched, as all fruit trees should be; but, like one half of the apple trees in the coun-

try, starved and died for the want of suitable vegetable matter placed within reach of its rootlets. This apple, being a great favorite in our family, was grafted into other trees in my orchard in Winthrop, which are now standing, from which my son took scions four years ago, and I engrafted them into an old tree in my orchard in Monmouth, mulching it well. This year it bore one barrel of splendid apples; of which the one forwarded is a specimen."

The apple is large, oblong, of a rich, warm red, striped, sub-acid, juicy, and a fruit of decided good character. As such it is worthy of dissemination. Its season is late fall. Mr. Smith justly placed great importance upon the value of mulching, as contributing to the growth and productiveness of all fruit trees.—*Maine Farmer*

NEW AND RARE PLANTS.

ZINNIA HAAGEANA FLORE-PLENO, Messrs. Haage & Schmidt, of Erfurt, regard as the best novelty amongst annuals which the season has produced. The typical form of the species, now generally known as the Z. Haageana of Regel, called also Z. aurea by Dr. Lindley, in this journal (*Gardener's Chronicle*, 1861, p. 1114), and further known in gardens under the name of Z. Mexicana and Z. Ghiesbrechtii, is pretty freely cultivated as a neat, low-growing, tufted, yellow flowered annual, and has long since become a favorite from its usefulness for dried or winter bouquets. This double-flowered variety differs in the form and doubleness of the flower-heads, which are perfectly rosette-shaped, and, moreover, is reported to be constant from seeds. The habit is the same as that of the single-flowered sort, the plant forming densely-branched tufts of about a foot in height, and somewhat more in diameter, and being abundantly furnished with the terminal flower-heads, which, as is usual, are of much longer duration in the double than the single form. The florets are as densely imbricated, and form heads of the same size and outline, as those of the best double Zinnia elegans, than which, however, they are naturally smaller in size. Their color is a deep orange-yellow, keeping its lustre when dried, and thus rendering this Zinnia an acquisition for bouquet-making. It is likely to be a good bedding plant, blooming continuously till frost sets in. Taking all its points into consideration, this Zinnia appears to be one of the best and most useful of the novelties for the coming season; and to be worth trial as a dwarf orange-yellow bedding plant, especially for the late summer flowering.—T. M. in *Gardener's Chronicle.*

CLEMATIS LANUGINOSA.—The *Villa Gardener* says, there is a plant of Clematis lanuginosa growing on a garden wall at St. Boswells, having a western exposure, and on which, at the time of a recent visit from the writer, there were 1249 fully expanded flowers. It was one of the grandest sights of its kind the writer had ever witnessed. It must have been grand indeed.

NEW DOUBLE GERANIUMS.—Double-flowered Pelargoniums have increased materially of late, and amongst them are some very excellent things, chiefly of Continental origin. At the time of our visit, Messrs. Downie, Laird & Laing hand a good sized span-roofed house devoted to them, and a nice lot of well grown plants they were. Out of the three dozen or more varieties in cultivation, the following appeared to be the best and most distinct, though in saying this we do not condemn the others: E. G. Henderson, carmine, dwarf in habit, and a free bloomer. C. Glijm, bright scarlet, flowers of good form, and in habit the dwarfest of the scarlet section; the best sent out last year. Sapeur Pompier, brilliant orange-scarlet, trusses large and of good shape, leaves of a bright green, with a distinct zone. Madame Racouchot, light rose, individual flowers large in size, and produced in very large trusses; free flowering. Tom Pouce, cerise; flowers also very fine in size. Merveille de Lorraine, rose, tipped with white; first-rate. Madame M. Buchner, bright salmon rose, shaded with carmine, the trusses large, and the habit dwarf and vigorous. The greatest obstacle to the grower of these charming summer decorative plants has heretofore been their extraordinary vigor of growth, which we are pleased to see is gradually being overcome by the introduction of varieties whose habit more resembles that of our old favorite Tom Thumb, than which we have yet no better model of what a bedding Pelargonium should be.—*Gardener's Chronicle.*

FOREIGN INTELLIGENCE.

LIBOCEDRUS DECURRENS.—Of this plant a correspondent of the *Gardener's Chronicle* says:

Thuja Lobbii.—Next to the Wellingtonia I would regard this as the most important addition made to our Pinetums during the last quarter of a century, as it promises to be something more than a mere shrub; in fact, it bids fair to eclipse the mammoth tree of the far West in rapidity of growth, upwards especially. It forms a nice clean stem or bole, tapering like a fishing-rod, and its slender graceful growth is still further enhanced by the bright green Fern-like spray with which it is clothed, not standing vertically, like so many of the Arborvitæ class, but horizontally, curving over towards the beholder in the loveliest manner possible, so that I imagine the tree must be a general favorite. It is also very hardy, as our severest winters do not seem to have taken any effect on it, and as before observed, it grows very fast; our largest specimen is 31 feet high, its yearly growth averaging 8 feet, and on two consecutive years its leader was lengthened 7 feet 8 inches; it has certainly a sheltered position, but other trees fully exposed grow almost as fast. I would recommend it as one in a collection that was limited to six species.

THE AMERICAN ASPEN (Populus tremuloides) is abundant in the region east of the Cascade Mountains and Sierra Nevada, forming a marked feature of the vegetation of the slopes of these mountains where the forests of the higher lands border the Sage plains of the central desert. Here it is seen in long lines of trees of small size, marking the courses of the many mountain streams which are in summer absorbed by the arid surfaces of the plains soon after leaving the mountain sides. Dr. Newberry says:—For a time we were often deceived by the Poplars and Willows, regarding them as indications of the presence of water, but we soon learned that they were only a sign that water was to be found in their vicinity at some time during the year Alders we found to be much better guides to water, as they will only follow the courses of the streams just so far as they are permanent, and no further; and we never failed, even near the close of the dry season, to find the roots of Alders washed by living water."—*Gardener's Chronicle*

THE WOOD OF THE OSAGE ORANGE, or Bois d'Arc (Maclura aurantiaca), is highly valued in Texas for carriage and wagon building. Changes of weather do not affect it, and wheels made of it have been in use for 10 or 15 years without needing repair, while other wheels in the same locality require to have the tires shrunk once a year. Vehicles built of this wood command higher prices by 30 per cent than those of ordinary timber. The wood yields a beautiful orange dye, and it is proposed to attempt obtaining this from the sawdust, which is at present valueless. It is frequently kept dwarf, and used as a hedge plant, for which purpose its strong spines render it very suitable.

GOOD WINE NEEDS NO BUSH.—Is the usual interpretation of this proverb right? An entry in Mr. Reilly's *Memorials of London* would lead one to suppose that the *bush* was not the bush on a pole outside the tavern, but a bush of a flavorsome herb inside the wine vessel. In 38 Edward III., A. D. 1367, Alice de Caustone confesses before the Mayor and Aldermen, "that she had sold ale in a measure called a 'quart' that was not sealed; and also that in the same measure there was put 'picche,' one inch and a half in depth, and that *rosemaryn* was laid upon it, *so as to look like a bush*, in the sight of the common people."

AGED TREES.—We are told that in 1810 a noted tree, the Golynos oak, was felled near Newport, Monmouthshire. It was 28½ feet in circumference, its bark sold for £200, its timber for £670; the rings (400) encircling its trunk indicated that it had continued growing 400 years. The far-famed red oak of Mount Etna was of precisely the same age. Four hundred years appears a venerable age even for a tree. Still there were many, the longevity of which was greatly in excess of it, among the most celebrated of which were the following: Fig tree in Damascus, 648 years; the Pescian olive tree, 700; olive tree in Palestine, 719; olive tree in Asia Minor, 850; the Louisanean oak (still living), 1,000; yew trees of Fountain Abbey, 1,200; yew trees of Crowhurst, Yorkshire, 1,400; sycamore of Heliopolis, 1,805; cedar of Mount Leb-

anon, 2,112; yew tree of Fotheringay, Scotland, 2,500; yew tree of Braburn, Kent, 3,000; sycamore of the Bosphorous, 4,020. The cypress of Taxodine, in Mexico, is said to be more than 5 000 years old. Its circumference was 117 feet 10 inches.—*Gardener's Magazine.*

HORTICULTURAL NOTICES.

PENNSYLVANIA HORTICULTURAL SOCIETY.

Among the places in Philadelphia visited by the Grand Duke Alexis of Russia, was the Horticultural Hall, and the papers report that he stood in raptures of admiration before the tropical scene which forms the back ground of the stage, and in which living plants are so intricately woven with the painted ones, and real water is so blended with that of the picture, that no one can tell the one from the other. The Grand Duke is represented as saying that he had seen nothing to equal it in beauty in any part of the world. If this distinguished individual could have seen it when the whole hall was filled with flowers and fruits, as Philadelphians see it at the annual exhibitions, he would have been still more astonished. The plants might perhaps be surpassed by the exhibitions of Europe. Indeed the English plant growers far excel ours. In novelties also they are ahead of us—there is more encouragement for these there—but no such an exhibition of fruits was ever seen anywhere in this world,—and when the plants are put together with these, and combined with the unique adornments of the Hall, it is no wonder that the visitors, though at 50 cents a ticket, to the exhibition are counted by the ten thousands

Nothing short of a volume the size of our whole number would do justice to the exhibition, and the Society has indeed issued a small pamphlet, free to all, giving full details of exhibtors and premiums. We still think, however, that it would do more good to the Society, and be far more satisfactory to the exhibitors, if the Society were to advertise in some public paper early in the season its principal premiums offered, and then again the premiums and exhibitors who were successful. This would give a world wide prominence to the details of the Society's workings, and be far more encouraging to the exhibitors, than merely alone to see the r names printed in a pamphlet sent to them by the Society.

In this place we can only give a few of the leading features of the exhibition. New plants are always interesting,—of these Mr. Robert Buist as usual contributed the greatest number. Peperomia Verschaffeltii with beautiful satiny leaves; Begonia Miltoniensis a pretty thing of the old incarnata style; Cissus Lindeni, not perhaps so pretty as C. discolor, but better than C. Amazonica; Croton Veitchii, with very long leaves; Sphærogyne latifolia, a fine companion plant to the Cyanophyllum magnifica; Begonia "Inimitable," pale above, and veined beneath, somewhat in the way of the well known B. Marshalli; Clerodendron speciosum, with a pinkish calyx; Acalypha tricolor, as pretty as a Coleus; Péristrophe angustifolia aurea, a low dwarf bushy plant with the marking and appearance of some of the popular Crotons; Alocasia Jenningsii, with leaves like the generality of Caladiums, but as if some one had daubed a black paint brush about the leaves.

Mr. Samuel Feast, of Baltimore, had a very select collection of rare evergreens in pots, of which Retinospora filicoides was a perfect gem.

Hoopes, Bro & Thomas of West Chester, had one of the most beautiful collections of Coniferæ in pots ever exhibited in the United States. It consisted of 160 species and varieties.

From Messrs. A. LaGierse & Bro., Philada., came some superb Coleus, and a very well grown Sanchesia nobilis

From the Graham Nurseries of Philadelphia, a beautiful collection of rare stove and greenhouse plants, amongst which the very rare Pandanus Vanderwerstii particularly attracted attention,—all these screw-like growing palms always interest visitors. Mr. Graham also had a good plant of Alocasia macrorhiza variegata, one half of which is green the other half white.

Mr. Wm. Joyce, gardener to Mrs. Baldwin, had a magnificent collection of plants. This was awarded the engraved watch which was offered for the best collection of plants grown by a gentleman's gardener. Mr. Newett, gardener to H. Pratt McKean, had also a collection in competition for this premium, but a trifle inferior to the other—probably not any inferior in growth, but the schedule called for "one half to be in bloom," and some plants a trifle inferior had to be selected to keep within the rules.

Henry C. Gibson, Esq , a munificent patron of rare plants, had an *Agave filifera* in flower. This was introduced some 20 years ago by Roezl from Mexico; so that this species, though belonging the same genus, is not at least a "Century plant."

The apples in exhibition were chiefly in large lots. Those which competed for the smaller premiums were terribly poor things, and the committee must have blushed as they felt the necessity, "under the rules," of awarding premiums to them, with so many superb fruits in the room. H. Leonard, of Burlington, Iowa, had a noble set of fruit which had a special premium awarded them. The English gardeners particularly thronged around a fine dish of Ribston Pippins—the great old apple of old England, though seldom seen in American collections. Iowa will find a large increase in immigrants of the English gardener class next year.

The apples from the Franklin Co. (Pa.) Horticultural Society were fully equal to anything the West can produce. These were in competition for the great Wilder premium for the best collection of fruits; but the other departments, grapes, peaches, &c., were so poor, it scarcely came up to the standard expected. If all had been equal to the apples, it would have been a wonderful sight. They were awarded a premium of high value.

The Kansas Immigration Society had a charming exhibition of fruits well displayed. The people had not forgotten the great display made by the Kansans last year; and the first inquiry of most on entering the room, was "had Kansas anything?" They were not disappointed.

Hoopes, Bro. & Thomas, of West Chester, made a beautiful display. There were few novelties among the apples. Susan Spice, in the Chambersburg, lot is not common. It is a beautiful fruit, something in the way of Wine Sap. The Red Winter Pearmain, though not a novelty, ought to be more grown for its beauty. It set off the Chambersburg fruits admirably. When it is remembered that President Wilder, Hovey & Co., Ellwanger & Barry, and Satterthwait had pears on exhibition, it will be at once understood that this department was highly attractive. The hundreds of varieties were bewildering, and yet afforded excellent opportunities of getting acquainted with many scarce and valuable kinds. Hovey's pears were, on the average, small of their kinds, but a very nice clean looking set. Satterthwait's was better than usual, but in the opinion of many of the fruit men, badly named. Ellwanger & Barry had very fine pears, up to the full size that pears of their respective varieties should be, but not as many in number as Hovey. Both the Howells and Beurre Clairgeau of Ellwanger and Barry were universally admired.

High colored pears came from Tobias Martin of Mercersburg, Pa. The Clapp's Favorite of J. H. Rickett's, were also much rosier than usual, although beneath the average size. In large pears, Dr. Leighton of Norfolk, Virginia, had the heaviest dozen, but the Vineland, N. J., dozen were but a trifle in the scale below them. Mrs. Baxter had a dish of the old, but excellent Petre pear. The Seckels of Wm. Parry of New Jersey, were remarkably high colored; and a rich rosy color in a Seckel is always a sign of excellence. A. S. Jenks of Philadelphia, had also some pears, which, as a stranger remarked, "looked like pears," but they were not so fortunately named. A certain Mr. Pierce had some pears and other fruits which he said had been produced by the aid of an "electric fertilizer;" but it must have been negative electricity, for no one could see any positive benefits in the results. Messrs. Cummings & Co., of Pittsburg, the worthy successors of Rev. J. Knox, did themselves and the Society honor by 61 varieties of grapes, all fine well grown and well colored bunches. Ellwanger & Barry had two seedlings, No. 4, and No. 19, which were deemed very promising varieties. Engle & Bro. of Marietta, Pa., had amongst their grapes excellent specimens of Rogers' 4 and 19—and 33 were as large as Black Hamburgs. The Chambersburg Nursery Association, amongst a nice collection, had many of Arnold's Hybrids, amongst them the Autochon, a white. Othello is certainly better than Clinton. A. J. H. Rickett's seedlings were much approved, especially Putnam, which seemed to rival in precocity many of the earliest already well known and extensively planted. There were some admirable Maxatawney's from Camden, N. J.

In foreign grapes, the exhibitions of former years' superior as they have always been, never excelled this one. Those of Mr. R. Reilly, gardener to Mrs. Merrick, were the centre of attraction to many a pair of longing eyes. The Buckland Sweetwater was in several collections, but did not maintain a very high character for aught but a showy appearance.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XIV. FEBRUARY, 1872. New Series, Vol. V. No. 2.

HINTS FOR FEBRUARY.

FLOWER GARDEN AND PLEASURE GROUND.

We can do the reader of this department no better service than to recommend at this season of the year, the procural of some of the beautiful seed catalogues which are now becoming numerous. They are indeed so charming as to almost endanger gardening; for one is tempted to be satisfied with them in pictures, than to grow them "for real." Here we have two splendidly illustrated from Rochester, one by Briggs & Bro.,—the other by Vick; two beauties from Boston, Hovey & Co., and Washburn & Co,—one from Springfield, Mass., by Olm, Bros.,—remarkably pretty ones from Bliss & Son, and Peter Henderson & Co., New York,—and in Philadelphia. Dreer, Landreth and Buist Sr., issue some quite equal in their line to the others. In trees are two unusually good ones from Hoopes, Bro. & Thomas, West Chester, and Frost & Co., Rochester. All these we praise, not merely for the beauty of their illustrations, in themselves highly commendable, but also for the immense amount of useful and accurate information which they give the reader. There may be others as good catalogues as these we have named, but if so they have not come to our table. Of less pretentious catalogues the number is legion. All seem to aim at giving useful information as well as mere lists of things. No one can go wrong in sending for the catalogue of the nearest nursery or seed firm. As a general thing it will be found the best policy to aid the floral, nursery or seed establishments near home. They are then encouraged by your sympathy to be enterprising, and thus you will in time be in the way of learning an immense amount of good things from your neighbor you never would know if you had left him to struggle along while enriching some establishment far away.

With the aid of these garden catalogues, a selection of seeds and plants suited to almost any place may be readily made. In regard to trees and shrubs a few suggestions may perhaps aid the reader.

For small places, and for thickening up larger ones, there is nothing like shrubs. Of those which are beautiful and can be readily and cheaply obtained, we may name Dwarf Horse-Chestnut, flowering in June; the different Dogwoods, Cornus Florida, C. sanguinea, C. mascula, C. alba, and particularly the variegated English; the Hawthorns are very pretty when in a cool soil and situation, partially shaded from the sun in summer—there are many fine double varieties of the English which do best when grafted on American stocks; the Double White and Double Red and Pink are particularly desirable; the Laburnum is rather a strong-growing shrub, also wanting a cool soil and situation. When the season happens favorably, it is the most ornamental shrub we have. The Sea Buckthorn is very desirable for its pretty silver foliage; but it should not be set upon a lawn, as it suckers somewhat; the shrubbery border is the place for it. Of the silver-leaved class the Oleasters are very desirable. The yellow is not hardy north of New York; but the small leaved (*Æleagnus parvifolia*) is perfectly so; it has in addition very sweet flowers and pretty berries to recommend it. The Silver Bell or Snow-drop tree is also a large shrub; but its early white

flowers give it a claim on most shrubberies, especially as it blooms quite young. The Magnolias purpurea and glauca are very desirable. The latter, as it grows in swamps when wild, is not often seen cultivated, as it is supposed it will not do in dry soil. This is a mistake. In a deep rich soil it thrives amazingly. It requires a free use of the pruning knife on transplanting. The European Bird Cherry is one of the handsomest strong-growing shrubs of its season—June. For a single specimen on a lawn it is not to be excelled. Its habit is good, and its flowering abundant; its berries are also very enticing to birds, which form no mean addition to the pleasure of a garden. The Pyrus Japonica every one knows; the white variety is desirable, though it is more pink than white. The Mist tree is indispensable, from its striking peculiarity of flowering. The White Fringe, with leaves like the Lilac, and large pendant clusters of white flowers, no less so. There are several Willows which, as shrubs, we would on no account be without, for their flowers large and sweet, and so early that the first sun that thaws the March snow, brings them out also. The Goat Willow and the Villars Willow—male varieties of course—are especially to be mentioned. The Indian Cherry (*Amelanchier*), following the Willow in flowering, and very beautiful; and the Double Pink, and Double White Dwarf Almond, are also early and pretty. The Yellow, White and Crimson Azaleas, are magnificent, but so scarce in nurseries, we are almost afraid to have them in this list. The different Berberries can be scarcely spared for their pretty red berries in fall. The sweet shrub or Virginia Calycanthus, is one of the sweetest of all flowering shrubs, though its color is dull. The Bladder Senna is very desirable for its love of our summer heat, flowering profusely during July and August. The Mezereon is particularly sweet and attractive, blooming very early, but like the Azalea, rather scarce in Nurseries. The Deutzias are well known,—scabra and gracilis are the two best. The Burning bushes are beautiful in the fall,—the Mississippi Purple (*atropurpurea*), and the European, are two most desirable. The Golden Bell and early Spiræas, (as prunifolia, Blumeana and Reevesii), every one wants as well as the Weigelia rosea. The public taste is divided on the Althea, yet there are few gardeners without some one variety or other. The variegated leaved is scarce, but as desirable as any shrub grown. The Oak-leaved Hydrangea makes a very striking object in a collection; and the common garden Hydrangea indispensable for dense shade. For flowering in August, and for dwarf compact habit, Hypericum Kalmianum, or the A. prolificum, is perhaps unrivalled. A rather scarce, but particularly pretty native shrub is Itea Virginica, which, like the Magnolia glauca, a swamp plant, cultivates well in dry ground. The Jasminum nudiflorum should be trained to a stiff stake, and get a pruning with the shears twice a year; it then grows very compact, and will support itself after the stake rots away; then it makes one of the prettiest shrubbery bushes imaginable. As an oriental looking plant, the common privet is good; indeed, its pure white flowers, fragrant as they are, and jet black berries, always attract attention. It is a plant that will thrive in the most gravelly soils. The upright Honeysuckles are perhaps the most common in gardens; the Tartarian deservedly so—few things are prettier. The Fly Honeysuckle is also desirable, for though the flowers are not quite as showy as the Tartarian, the habit is most graceful. Then the Mock Oranges or Philadelphus, though all white-flowering, afford, by their diversity of habit, many good shrubs. The sweet one (*P. coronarius*), one of the oldest and best, is least common. The Large flowered and Gordon's Upright are the two next best. The Tree Pæonies, though rather expensive, every one wants. The Red and White Snowberry make good show in winter by their interesting fruit. As for the Lilacs, we need scarcely recommend them; common as they are, no garden is complete without them. The Persian is a very distinct one from the common kinds. There are many new varieties, but they are but shades of old colors. The Tamarix is not often seen, but a great favorite of ours. In the class of Viburnums the Snowball is well known; also the high bush or false Cranberry, the Black Haw and the Wayfaring tree are the best.

Amongst large sized trees of the evergreen class, that are almost indispensable in grounds of any size, are the White or Weymouth Pine, Austrian Pine, Scotch Pine, all well known; but there are a few others which are scarcer, but which when common enough to be cheap, will be quite as much appreciated as these. Amongst these are the Bhotan or Himalayan Pine, *Pinus excelsa*. This has been unpopular because of a few fine specimens having been killed by some insects or fungus, it is not clear which,—but we know some specimens thirty feet high, and be-

lieve they are no more subject to disease than the White Pine. *Pinus Australis*, the long leaved Pine of the South, is hardy in Philadelphia, but it has to get strongly rooted before it grows fast, and has to reach age before it branches much; we cannot speak of its value in ornamental gardening. *Pinus maritima*, is somewhat like it in its long leaves, but is the most rapid of all pines. It is not pretty when young; but makes a very striking appearance with age on large lawns. It is just hardy in Philadelphia, but we suppose would be too much injured to be popular north of this generally. *Pinus mitis* and *Pinus rigida*, are two very pretty native Pines of large growth, equal in beauty to any foreign kinds, but so rarely grown in nurseries that we are afraid to name them here, as we do not know where the planter could obtain them. *Pinus pyrenaica*, is much like the Austrian, but has longer and finer foliage, and the wood is reddish instead of a grey brown, as in the common Black Austrian. Amongst the spruces the best known and most essential is the Norway. Then we may use the White Spruce, and, in northern regions, the Black Spruce. We believe it does no good south of this point. The Hemlock Spruce is very desirable so far south as North Carolina, below that it dwindles away. Amongst the rarer ones are *A. Menziesii* and south of Philadelphia, *A. Douglasii*. Of the fir tribe the Silver is extremely desirable, and the Balsam Fir in northern regions, or in low rich soils, but not wet. Amongst the rarer ones very desirable is the Siberian, the Nordmann, and the Cephalonian Silvers,—the last the tenderest we believe, the *nobilis* and *grandis* will also prove very hardy and desirable, although we have seen no very large specimens. We think we may class the *Cryptomeria japonica* amongst the larger class of Evergreens which is hardy and desirable, and then close our list, no very extensive one. Of Evergreens which make only a medium sized tree, we also have Pines, Spruces and Firs,—of the former, the Cembran Pine is indispensable; and if we could find them in our nurseries, we would like to add *Pinus inops* and *Pinus Banksiana*. Of Spruces we have no common ones of medium height, but a rather rare one, *Abies orientalis* ought to be in every small garden where choice and good things are desirable. When we get to the smaller size evergreens or dwarfs, we have a great variety amongst Junipers, Arborvitæs and Yews. Of this class however are three which deserve especial mention, because we think that any one who will make them common enough to plant cheaply everywhere will be public benefactors: we mean Lawson's Cypress, Nutkæ Sound Arborvitæ, and the *Libocedrus decurrens*, all hardy and very beautiful evergreens of medium growth.

Though limited pretty much in evergreens, there is a great variety in deciduous trees from which to choose. We have, at least here in the East, to drop three beautiful trees—the Elms, through their foliage being so disfigured by the leaf slug,—the Plane tree, which has its early foliage destroyed in Spring by a fungus,—and the European Linden, whose trunk soon becomes the prey of borers. But we have left the American Linden,—the European Plane,—the Oak in its many forms,—the Ash, of which we have half a dozen kinds in the nurseries,—the Beech with their many forms of foliage, especially the blood-leaved and the weeping, Poplars, Horse Chestnuts, Birches, Maples, many varieties,—Chestnuts, Sweet Gums, Kentucky Coffee, Willows, Magnolias, Tulip trees, Cypress, and Larch, are among those easily to be obtained.

FRUIT GARDEN.

When fruit trees are grown with root or other crops, it is well known that such root crops will not do without manure. In this operation the trees steal a little intended for the root crops. Hence trees so grown are very likely to have a green, nice color, in strong contrast with neglected trees in grass. It must not be forgotten that trees need as much food as any other crop, and that there is no better way to feed them than by applying at this season on the surface; give them something, if only ditch cleanings. Pruning of fruit trees should be completed as soon as possible, and as a general thing the least pruning the better. In apple or pear trees, strong stout sprouts are apt to come out along the main branches of the tree. These are best cut out, as in time they take to themselves the food destined for the branches beyond, and in this way injure those branches. At other times a branch for some time bearing becomes weakened by some cause, in which case it is often a benefit to cut this off back to a vigorous sprout This is particularly the case when bark gets what the gardeners call hide-bound. In this case the branches are bettered by slitting the bark longitudinally, or by cutting back to a young sprout as aforesaid.

The grape is very apt, when trained on trellises, to get its bearing wood weakened. In this case it is always wise, in pruning, to watch for a chance to get a strong young branch from near the base as a renewal cane.

All fruit trees like a rather dry, rich soil. On a cold clayey bottom, diseases are usually frequent. As to whether underdraining, although a benefit in the abstract, is sufficiently so as to be a profitable operation in many cases, is a question deserving some thought before embarking largely on labor and materials, costing say a dollar against an improvement not worth more than one or two per cent. per annum, is not the most judicious expenditure. When one has a very wet piece of ground, there can be no mistake about the value of underdraining it, providing one has no other ground fit for fruit trees that is not wet; but when the ground is naturally in fair condition, it would be well to go by the advice of some practical man, or at least experiment on a small scale first, before embarking largely in the improvement.

Do not plant deep; cut off tap roots, and do all you can to encourage surface fibres. Surface manuring is the best way of doing this after the tree is planted. Do not allow anything to grow vigorously around your trees the first year of planting, nor allow the soil to become hard or dry. Let trees branch low, and prune a little at transplanting.

Manuring of grapes should be regulated by the nature of the soil. If it be damp—in most cases a bad condition for grape growing—stable manure in great quantities means diseased vines. In dry ground, it has a beneficial effect. Many persons of small places have grapes in damp ground, or can have none. They must take care to keep the roots near the surface; never crop the ground about them to destroy the small fibres, if it can be avoided; and even good may often follow, when the vines seem failing, to carefully follow up the roots, lift near the surface, and encourage, as much as possible, those remaining there. Wood-ashes, bone-dust, and such like fertilizers are best for grape vines in low ground.

The Strawberry, where it has been covered during the winter, should be uncovered as early as possible in spring, that the warm spring suns may exert all their influence in producing an early crop. As soon as growth commences, a sowing of guano has been found to be of great benefit to the crop of fruit.

Raspberries and Blackberries may be planted towards the end of the month; they should be cut down to within a foot of the ground at planting; they will, of course, not then bear the next season after planting. But this is a benefit; no fruit tree should be allowed to bear the same season.

VEGETABLE GARDEN.

In the Middle States, the work for February will, for the most part, consist of preparations for future operations, and particularly for dealing with the manure question. All those kinds that are grown for their leaves or stems require an abundance of nitrogenous manures; and it is useless to attempt vegetable gardening without it. To this class belong Cabbage, Lettuce, Spinach, etc. The other class, which is grown principally for its seeds or pods, (as Beans, Peas, etc.,) do not require much manure of this character; in fact they are injured by it. It causes too great a growth of stem and leaf, and the earliness—a great aim in vegetable growing—is injuriously affected. Mineral manures, as wood ashes, bone-dust, etc., are much better for them. For vegetables requiring rich stable manure, it is better that they have it well rotted and decayed. Nothing has yet been found so well fitted for the purpose as old hot-bed dung: though to the smell, no trace of "ammonia" remains in it.

One of the most interesting parts of a vegetable garden is a hot-bed for starting seeds early. The end of the month will be time enough for those who have not command of a large supply of stable manure, as the very low temperature we often get at the end of the month soon absorbs all the heat the hot-bed possessed. It is in any event best to put up the beds in the warmest and most sheltered spots we can find, and to keep cold winds from the manure, by covering it with branches of trees or mats; and the glass should always be covered with mats at night. Tomatoes, Egg-plants, Peppers and Cucumbers, are the first seeds to be sown this way. Cooler frames can be got ready for Cauliflower, Lettuce, Beets, Celery and Early York Cabbage, a little of which may be sown about the end of the month for the earliest crop. The Cauliflower is a particularly valued vegetable, and no expense spared to get them in perfection will be regretted when one's efforts are successful.

In the open air, should the weather prove fa-

vorable, as it often is about the end of the month, Peas and Potatoes may be planted. Frost seldom gets deep enough in new dug ground to injure them after this date.

In the more southern States, the gardener will lose no time in getting in his Potatoes, Beets, Carrots, Parsnips, Peas, Spinach, Radishes, Lettuce, Onions and Salsafy. These should be the first crops put in after the season breaks up for good. The earlier they are in the better. Asparagus, Rhubarb and Horse Radish beds may now be made. Asparagus roots are generally planted too thickly to produce fine shoots,—they starve one another. A bed five feet wide should have three rows, and the plants set about eighteen inches apart. A deep soil is very important, as the succulent stems require every chance they can get for obtaining moisture. About four inches beneath the soil is sufficient to plant them. Rhubarb also requires a deep, rich and moist soil. Horse Radish beds are best made by taking pieces of strong roots, about one inch long, and making a hole about a foot or fifteen inches deep, with a dibble, and dropping the piece to the bottom of the hole; a clean, straight root will then rise up through the soil. Crowns or eyes are better than pieces of roots,—where they can be had,—and a rich clayey soil better than a light, sandy one.

About the middle or end of the month, or still later in the North,—say the middle of March,—Celery and late Cabbage may be sown. Here, we usually sow the second week in March.

In the Northern States, Broccoli, and Cauliflower when sown in March as recommended, do not head early enough in Fall. It should be sown about the time of Early York Cabbage, in the hot-bed, during this month.

COMMUNICATIONS.

ELIGIBLE TIMBER TREES.

BY FERD. VON MUELLER, MELBOURNE, AUS.

(*Continued.*)

PINUS CEDRUS VAR. Deodara.

Deodar Cedar. On the Himalaya mountains, 4 to 12,000 feet above sea level. A majestic tree, 150 feet high, and sometimes 30 feet in circumference of stem. The wood is of a whitish yellow color, very close grained and resinous, and furnishes one of the best building timbers known; it must, however, not be felled too young. The tree also yields a good deal of resin and turpentine.

PINUS CEMBRA, L.

On the Europeans Alps, also in Siberia and Tartary. The tree attains a height of 60 feet; the wood is of a yellow color, very soft and resinous, of an extremely fine texture and is extensively used for carving and cabinet work. The seeds are edible, and when pressed yield a great quantity of oil. A good turpentine is also obtained from this pine.

PINUS CEMBROIDES, Zucc. (*P. Llavena*, Schiede and Deppe.)

Mexican Swamp Pine. A small tree, 30 feet high, growing at an elevation of 8000 to 10,000 feet. The timber is not of much use, but the seeds are edible and have a very agreeable taste.

P. CILICICA, Ant. and Kotsch.

Cilician Silver Fir, Asia Minor. 4000 to 6500 above the sea level. A handsome tree of pyramidal growth 160 feet high. The wood is very soft and used extensively for the roofs of houses, as it does not warp. (12)

PINUS CONTORTA, Dougl.

On high damp ranges in California, attaining 50 feet in height. It is valuable as a shelter tree in stormy localities, (13)

PINUS COULTERI, Don.

California, on the eastern slope of the coast range at an elevation of 3000 to 4000 feet. A pine of quick growth, attaining a height of 75 feet; it has the largest cones of all pines.

PINUS DOUGLASII, Sabine.*

Oregon Pine. N. W. America forming very extensive forests. A large conical shaped tree, up to 300 feet in height, with a stem of

[12] It will puzzle some to understand why this should be regarded as a distinct species, more than *P Nord manniana*. It has a looser habit than P. Nordmanniana

[13] This is abundant in the Rocky Mountains of Colorado; clothing thickly rocky hill sides, and is by no means confined to "damp ranges."

2 to 10 feet diameter. Only in a moist forest climate of rapid growth. (14)

PINUS DUMOSA, Don (*P. Brunoniana, Wall.*)
Bhotan, Sikkim and Nepal, 10,000 feet above sea level. A very ornamental fir, rising to 70 or 80 feet.

PINUS EXCELSA, Wall.*
The lofty or Bhotan Pine, Himalaya, forming large forests at from 6000 to 11,500 feet elevation. A fine tree, 150 feet high, furnishing a valuable, close-grained, resinous wood, as well as a good quantity of turpentine.

PINUS FORTUNEI, Parlatore.
China, in the neighborhood of Foochowfoo. A splendid tree, 70 feet high, somewhat similar in habit to P. Cedrus.

PINUS FRASERI, Pursh.
Double Balsam Fir. On high mountains of Carolina and Pennsylvania. This tree, which gets about 20 feet high, yields with P. balsamea, Canada Balsam.

PINUS GERARDIANA, Wall.
Nepal Nut Pine. In the N. E. parts of the Himalaya at an elevation of 10,000 to 12,000 feet, forming extensive forests. The tree gets 50 feet high, and produces very sweet edible seeds, also turpentine.

PINUS GRANDIS, Dougl.
Great Silver Fir of North California. A splendid fir, 200 feet high and upwards, growing best in moist valleys of high ranges; the wood is white and soft.

PINUS HALEPPENSIS, Mill.*
Aleppo Pine. South Europe and North Africa. This well known pine attains a height of 80 feet with a stem of from 4 to 5 feet in diameter. The timber of young trees is white, of older trees of a dark color; it is principally esteemed for ship building but also used for furniture. The tree yields a kind of Venetian turpentine, as well as a valuable tar. It thrives well in waterless rocky places, also on the sandy sea coast. P. maritima is a variety of this species. Content with the poorest and driest localities, and rapid of growth.

PINUS HARTWEGII, Lindl.
Mexico, 9000 to 13,000 feet above sea level. A pine, 50 feet in height, with a very durable wood of a reddish color; it yields a large quantity of resin.

[14] Also in Colorado, and does well only in deep rich soil from the hill slopes; though it grows tolerably on the dry hill sides.

PINUS LARIX, L.
Common Larch; deciduous. On the European Alps up to 7000 feet. It attains a height of 100 feet, sometimes rising even up to 160 feet, and produces a valuable timber of great durability, which is used for land and water buildings, and much prized for ship building. The bark is used for tanning and dyeing. The tree is of great importance for its yield of the Venetian turpentine, which is obtained by boring holes into it in spring; these fill during the summer, supplying from ½ to ¾ pint of turpentine. In Piedmont, where they tap the tree in different places and let the liquid continually run, it is said that from 7 to 8 may be obtained in a year, but the wood suffers through this operation. P. L. var. Rossica, Russian Larch, growing principally on the Altai mountains from 2,500 to 5,500 feet above sea level; it attains a height of 80 ft. The species would be important for our upland country.

PINUS LEIOPHYLLA, Scheide and Deppe.
7000 to 11,000 feet up on the mountains of Mexico. A tree 90 feet high. The wood is excessively hard.

PINUS LEPTOLEPIS, Sieb. and Zucc.
Japan Larch. In Japan, between 25° and 48° N. lat, up to an elevation of 9000 feet. The timber is highly valued by the Japanese.

PINUS LONGIFOLIA, Roxb.*
Emodi Pine or Cheer Pine. On the Himalaya mountains, from 2000 to 7000 feet. A handsome tree with a branchless stem of 50 feet; the wood is resinous and the red variety useful for building; it yields a quantity of tar and turpentine. The tree stands exposure and heat well.

PINUS MASSONIANA, Lamb. (*P. Sinensis*, Lamb.)
China and Japan. This pine attains a height of 60 feet, and supplies a resinous tough and durable wood, used for building and furniture. These roots, when burned with the oil of Brassica Orientalis, furnish the Chinese Lampblack.

PINUS MENZIESII, Dougl.
North West America. A very handsome tree, which grows to a height of 70 feet and furnishes a valuable timber; it thrives best in moist ground. (15)

[15] This will grow to a height of 100 feet in rich valleys of the Rocky mountains of Colorado,—as high as P. grandis in the same region.

PINUS HUDSONICA, Poir. (*P Banksiana* Lamb.)

Grey Pine; North America, up to 64° N. lat. Height of tree 40 feet, in the cold north only a shrub. The wood is light, tough and easily worked.

PINUS JEFFREYI, Murr.

North Carolina, on a sterile sandy soil. A pine, 150 feet high; stem 4 feet thick.

PINUS KEMPFERI, Lamb.

Chinese Larch; also called Golden Pine. China. This is the handsomest of all the larches. It is of quick growth, and attains a height of 150 feet. The leaves, which are of a vivid green during spring and summer, turn to a golden yellow in autumn. The wood is very hard and durable.

PINUS KORAIENSIS, Sieb. and Zucc.

China and Japan. A handsome tree, 30 to 40 feet high, producing edible seeds

PINUS LAMBERTIANA, Dougl.

Giant or Sugar Pine. North-west coast of America; mostly in great altitudes. A lofty tree, upwards of 300 feet high, with a straight, naked stem of from 20 to 60 feet in circumference. It thrives best in sandy soil, and produces a soft, white, straight grained wood, which for inside work is esteemed above any other pine in California, and furnished in large quantities. The cones are 18 inches long; the seeds are edible, and used as food by the natives. Would come best to perfection in the humid regions of our higher mountains.

PINUS LARICIO, Poir.*

Corsican Pine. South Europe. It attains a height of 120 feet. The wood is white, towards the centre dark, very resinous, coarse-grained, elastic and durable, and much esteemed for building, especially for waterworks. There are three main varieties of this pine, viz.: P. L. Poiretiana, in Italy; P. L. Austriaca, in Austria; P. L. Pallassiana, on the borders of the Black Sea. The tree grows best in calcareous soil, but also in poor, sandy soil, where, however, the timber is not so large nor so good. It yields all the products of P. sylvestris, but in greater quantities, being perhaps the most resinous of all pines.

PINUS MERTENSIANA, Bong.

Californian Hemlock Spruce. North-west America. The wood is white and very soft, but is often used for building. The tree is from 100 to 150 feet high, by a stem diameter of 4 to 6 feet.

PINUS MITIS, Michx.

Yellow Pine of North America. In dry sandy soil, attaining a height of 60 feet. Wood durable, fine-grained, moderately resinous, valuable for flooring.

HOW TO GROW THE CEDAR OF LEBANON.

BY JOHN HENRY JAWNDYCE.

Sometime ago a correspondent gave our readers a notice of the Cedar of Lebanon. It appears this brought a note from some one for further information, to which his gardener thus responds:

Mr. —— being unfortunately absent, his sub-tropical gardener, who answers his letters, begs to say that the Cedar of Lebanon is rather a delicate tree, but in the hands of experienced cultivators, there is no great difficulty in having a full supply. Get the seeds of any corner grocer; plant in half inch pots early in December, drain pots with tailor's cuttings, and place in the saucer a mixture of one half molasses and water and one half Raccoon droppings, with a thimbleful or pinch of Ammonia subprostrata; set pot on counter, keep dry, and shade with yard-stick. The plants will appear in three days very vigorous. Plant out after first cold storm in a snow drift, the deeper the better; when the snow entirely disappears, the plants will be as high as the original drift; repot in two inch pots, and in a week or less the cones will appear. As soon as large as a strawberry, snip them off, and replant in same manner, and in a month they will throw up 15 or perhaps 16 vigorous shoots. These must have more Raccoon manure, and stopping the hole in the pots to prevent the delicate root from getting through; place in a charcoal bath in a shady place not too much exposed to northerly winds, and leave out for five or six days, when the leaves, now well grown, will be ready to transplant wherever required. Pluck all young cones as they appear for future stock; and don't let all your neighbors see them, for they are so handsome that tailors and other neighbors will be sure to steal them.

In one six months they will be twelve feet in height, nicely furnished and full of vigor. In a year they shade the largest houses, and be suitable to plant round houses such as Tweed and

Connelly, or the City Hall in New York, where Scripture trees are badly wanted.

For further information, reference is made to Loudon's works, price $200 00, Downing, Smith, Barry, Meehan and others.

[We hardly know how Mr. Jawndyce's employer will like this answer. It seems to us that he will decidedly object to his occupying so much time in all these elaborate and learned details, when he should be occupied in potting palms, or in some other of the numerous jobs of the sub-tropical garden. On the other hand, we do not know whether it is hardly right for a stranger to bore our correspondents with letters, trespassing on their time and good nature merely because they were generous enough to contribute a few notes to our pages. For some time we have protected most of our correspondents by not giving their full names, and hence when we have had the distinguished honor to receive contributions from sources similar to Queen Victoria, or Kaiser Wilhelm, or Governor Seymour, or General Grant, we had to insert them under anonymous names.

If, therefore, our readers fail to see among our contributors the name of their excellencies, ex-governor Smith of Virginia, or the Hon. Amori Mori, Ambassador of Japan, it must not be attributed to the fact that these distinguished horticulturists do not write for our magazine; but simply to a resolution which we mean to adhere to, that our friends who write for us by day, may not have to sit up till midnight to answer letters, as we now see in a postcript to Mr. Jawndyce's letter was the case with him, and not in his employer's time as we at first supposed.—Ed]

ADDRESS OF PRESIDENT HOOPES.

Delivered before the Pennsylvania Fruit Growers' Society, in Philadelphia, January 17th, 1872.

Ladies and Gentlemen:—

In rising to perform my annual duty, the question which presents itself most forcibly to my mind, is whether it would not be advisable to deviate somewhat from our old beaten track—that well-worn path, trodden for so many years by far abler men than I. Is there not something to be learned in this old, yet ever new study of ours, without having resource to those topics, which have been so persistently discussed almost from time immemorial? I cannot teach one of you what varieties of fruit you should plant, nor how best the operation can be performed on your own grounds. Careful practice, aided by judicious experiments, will help you far better than words of mine. The time has now arrived when horticulture should be elevated above the mere routine of chance varieties and meaningless experiments. Let their places be once filled by a knowledge of the laws that govern vegetable life, and we shall then be more competent to judge of the nature of the diseases that afflict our trees and plants, and have a better understanding of the proper remedies to be applied in every case.

We often hear the remark, that our scientific lectures should be made more popular, by avoiding technicalities and what are termed dry and uninteresting disquisitions; but I would far rather endeavor to educate the masses up to a higher standard of knowledge than to lower the scientist to meet the requirements of the ignorant. I hold that natural science is the basis of all learning—the foundation, in fact, upon which the after structure of a liberal education shall be erected. This cannot be learned exclusively from books; but in the child's earliest years, the objects that meet its eye on every hand—that appeal to its senses in so many varied forms—are lessons fraught with the most beautiful truths; more fascinating in their character than all the agreeable studies invented by a progressive age. I know that my views on this point are liable to be misconstrued and censured; but the longer I live, the more fully am I convinced that this "object teaching" of lessons taken from nature's great storehouse, is the proper and only true method by which the young may be initiated into those principles, which will fit them for the responsibilities of a sound practical education in after life. Prof. Huxley, one of the greatest scientists of modern times, says: "That man, I think, has had a liberal education who has been so trained in youth that his body is the ready servant of his will, and does with ease and pleasure all the work that, as a mechanism, it is capable of; whose intellect is a clear, cold, logic engine, with all its parts of equal strength, and in smooth working order; ready, like a steam engine, to be turned to any kind of work, and spin the gossamers as well as forge the anchors of the mind; whose mind is stored with a knowledge of the great and fundamental truths of nature, and of the laws of her operations; one who, no stunted ascetic, is full

of life and fire, but whose passions are trained to come to heal by a vigorous will, the servant of a tender conscience; who has learned to love all beauty, whether of nature or of art, to hate all vileness, and to respect others as himself. He will make the best of her, and she of him. They will get on together rarely; she as his ever beneficent mother; he as her mouth-piece, her conscious self, her minister and interpreter."

In the many divisions of natural science, I will not, for a moment, undertake to say which is the most pleasant, or which the most useful to the majority of our people. But to the horticulturist, botany is of incalculable use. The principles upon which it rests point to every operation within his province, and show him unerringly, as no other system can, the errors and mistakes of his daily practice; and as the finger-board by the roadside assists the benighted traveler, so do the rules of botanical science open up new ideas and suggest new modes of culture, based on truths that cannot be combatted. No portion of the study is of more importance, and at the same time of more real interest, than that termed *Vegetable Histology*, or microscopic botany—the observation of those organs undiscernable to the unaided eye. As each portion of the plant passes in review beneath the powerful lens, it is really astonishing what new wonders are continually being brought to notice, and how little the great world at large actually knows about the internal (yes, and external as well) structure of vegetable life. How many of our farmers and horticulturists can to-day explain the various duties for roots, stems and leaves to perform, or what action takes place during the growth of these organs of vegetation? I can assure you the number is small indeed, and yet aperfect knowledge of these principles will ren der more valuable assistance to the diligent inquirer after knowledge than all else besides

I do not propose to teach any new doctrine this evening, for the whole ground has been gone over and over again by every botanical student; but if I can manage to present these beautiful pictures in an interesting manner, just as I have seen them, and personally examined their structure under various conditions—in health, as well as distorted by disease—from the first appearance of life to decay; then I can assure you that your approbation will be all the reward that I desire.

STRUCTURE OF ROOTS.

Commencing our examination of a fruit tree in its very earliest stage, in fact when the young rootlet has just pushed downward into the earth and the little radicle or stem ascended upward, we find that it is really a combination of exceedingly small cells, and that its after growth is merely an increase of these cells until maturity; but so long as growth continues, these minute cells accumulate, and as the wood hardens they become intersected and divided by other internal organs. As the young and tender plant gains strength, the natural green color pervades its entire being, caused by small grains termed *chlorophyll*, found floating in the superficial cells, and especially in those of the leaf. But to continue our researches in the root. We find on the surface of the original rootlet a number of fine hair-like appendages or fibres; these in themselves are cells, or rather prolongations of external cells, and are valuable auxiliaries in supplying nourishment to plant life. At the extremity of this simple root is what has been named a *spongiole*, and here is a point that many persons suppose all nutriment enters into the plant—absorbing and drawing it in from the surrounding soil; but the fact is well established, that although the terminus does in reality extract considerable sustenance, on account of its tender and immature character, yet the whole surface of the young rootlet lends its aid in the operation.

The extreme point of the root, however, is not of much importance, as it consists of a mass of disconnected cells which have been displaced and pushed forward as the root was prolonged, consequently they do not possess the same properties of absorption as do the younger and newly formed organs. As these spongelets gradually decay, they are continually being replaced by subsequent layers of the same character.

This absorbing feature is confined solely to young roots; for when the surface becomes hardened and the bark tough, it then assumes a new position, namely, that of supporting the tree firmly, whilst it bequeaths to its successors the task of furnishing food to the common stock. Hence we are enabled to assign a cause for the numerous failures that so frequently occur in the removal of such trees as have been carelessly lifted; for although at the end of the growing season very many of these rootlets or fibres annually perish from natural causes, yet when the larger portion of them are destroyed with the spade, there is not a sufficiency remaining to carry on the requisite system of feeding, when warm weather compels the functions of our new-

ly planted tree to renew its action. The consequence is necessarily disastrous in most cases, for if its life be not sacrificed entirely, its whole appearance becomes sickly, the visible portion remaining stationary so far as outward growth is concerned, and two or three years generally elapse before a sufficient number of rootlets are again formed to supply its natural food. If our tree is taken up and examined at the end of the first year, we will observe a quantity of little hair-like rootlets, mostly in bundles, emanating from the extremities of these cut or bruised roots, showing conclusively that the older portions do not act as feeders, but in order to sustain life it is requisite that other and younger organs should be supplied for the purpose. The question of absorption by the root appears to be somewhat of a disputed point,—some writers contending that moisture, and even fluids are conveyed into the organism of the tree; but I prefer to be classed with those who believe that nourishment enters only in a gaseous or vapory state. We will all, however, agree on the fact, that nothing in a solidified form can pass into the roots, and that a transformation must ensue before fertilizing material of this nature can be used in promoting the growth of the plant. Therefore, ammonia and kindred fertilizers are useless excepting in a volatile state.

In the latter condition, the tender young rootlets quickly absorb them into the cellular tissue, and distribute their valuable properties throughout the whole structure. Plants growing in retentive soil, where an abundance of water accumulates and becomes stagnant around the delicate young fibres, quickly decay, and a powerful lens discovers the fact, that the cellular tissue in its immature conditions being incapable of existing in the vicinity of water, soon becomes a mass of decomposed vegetable matter, and the cells lose their shape and beauty.

But to continue the subject of *Histology*, which means literally the *science of the tissues*. In addition to the cellular tissue, there are other elementary organs, known as *vascular tissue*, or vessels of an elongated shape. Whilst cells are more or less rounded, vessels are always tubular and somewhat pointed at the extremities. Our fruit-bearing plants and trees consist of both cellular and vascular tissue, hence they are termed *vascular plants;* but the lower orders of vegetation, embracing the fungi and kindred families, consist solely of cells, and are known as *cellular plants*. Although my desire this evening is to be as elementary as possible, yet I trust you will pardon me for occasionally using technical terms when they cannot well be avoided, and as these organs might be classed as the vital functions of plant-life, the student of horticulture should be conversant with their history and titles. I will state in this connection, that all plants, from the very lowest known types to the highest orders, originate from simple cells, and what is regarded as annual growth, is in reality a multiplication of cells; but the more complicated structures belonging to the higher orders show, as their organization progresses, a development of other organs which never exist in the simpler forms of vegetable life. The lowest and simplest orders—those, in fact, which form a connecting link with the animal creation—are nothing but an accumulation of cells, each one of which has the power of forming a separate and individual existence, and again in its turn undergoing a self-multiplication of primordial cells. Those of you who have noticed the enlarged knobs or excrescences on the roots of apple trees, need not be told that they are caused by insects destroying the young cells, and consequently a distorted condition of the parts adjacent is the result. When magnified, we find the beautiful arrangement of the cellular tissue is no longer seen, but in its place a mass of irregular vessels, with woody fibre ramifying throughout, in all conceivable directions. The whole normal condition of these roots having been thus disturbed, and perhaps in many cases poisoned by the insects, the health of the tree is always more or less affected, and its enfeebled constitution prevents it from becoming useful in after years.

During my microscopic examinations of the roots of fruit-bearing plants, to test the damage caused by careless digging, I found, when such had been lacerated with the spade, the older wood quickly changed color, and presented undeniable evidence of improper treatment. The cell-walls or cellular tissue are broken and thoroughly disarranged, and in place of their clear, almost transparent condition, when noticed in a healthy section, they were now discolored, and in a decaying state. This disease, for such it undoubtedly became in a short time, spreads quickly to the surrounding tissues, and a large portion of the root ultimately dies.

In the case of frozen roots after digging, very much the same effect was noticed. The delicate cellular tissue was rapidly affected and discolored, so that the life of the tree had to be sacrific

ed. If our planters generally could only be convinced of the importance of carefully protecting the roots of their trees when out of the ground, very many of the failures which now happen would undoubtedly be prevented. If they could be made to understand the delicate nature of the inner structure of these important organs, how like those of the human system they are liable to be disarranged by very slight causes, many of the mistakes of our daily practice would certainly be remedied.

STRUCTURE OF STEMS AND BRANCHES.

Our observations on the interior of the stem and branches are very similar to those of the roots, with the exception of the parts whence originate the buds—the nucleus of the succeeding year's growth and flowers. Again commencing with a tender young seedling, we find the interior of its young stem is a beautifully arranged system of cells, each filled with a fluid, at first clear, but soon thereafter showing the little grains of chlorophyll or green coloring matter floating therein. The immense number of these infinitessimal cells in a single plant is almost beyond calculation, for Prof. Gray records that "an ordinary size is from 1-300 to 1-500 of an inch; so that there may generally be from 27 to 125 millions of cells in the compass of a cubic inch." In regard to the very rapid growth of these cells, the same good authority states: "After waiting many years, or even for a century, to gather strength and materials for the effort, Century Plants in our conservatories send up a flowering stalk, which grows day after day at the rate of a foot in twenty-four hours, and becomes about six inches in diameter. This, supposing the cells to average 1-300 of an inch in diameter, requires the formation of over twenty thousand millions of cells in a day." Before proceeding further with our investigations, it might be proper to state that the first evidence we have of plant life is a single cell; this in the embryo increases to its full size, then divides into two parts, each of which in its turn grows to maturity, to be again divided by a partition, and so on until the embryo becomes perfect. As soon as the growth of the seed commences, the cells again perform the same ordeal of expanding and dividing; and this continues to the end—the new growth always being an accumulation of cells. A transverse section of a branch of the apple or pear, of one season's growth, will give us a very clear insight into the various cells and tissues which constitute the majority of our higher order of trees. Hitherto we have confined our researches to the cells and cellular tissue only; we will now note all the parts, and then explain each separately.

The outer portion, as you all know, is called the bark, which at first is merely a mass of cells similar to the interior of the wood, but in a short time the microscope reveals several distinct layers. First we see the epidermis or outside covering—green in its younger stages, changing to various tints at the close of the growing season, and frequently cast off by the plant as it increases with age. Under this we find the outer bark, which may be divided into two layers—the *green envelope*, a cellular tissue filled with chlorophyll, and the *corky envelope* which gives the true color to the tree in after years. We next find the inner bark, commonly called the *Liber*, composed of long spindle-shaped tubes and bundles of woody fibre, with lactiferous vessels. This, in the Linden tree, forms the "bass string" so useful to the nurseryman in his budding operations. It is also the material from which is manufactured our linen, ropes, &c., when taken from Flax and Hemp. The inner bark is increased by growth from the inside, contrary to the exogenous wood, which is *vice versa*. The division immediately beneath the bark is termed the *cambium layer*, and is a collection of cells concerned in the growth of new wood as well as the inner bark, and during the early spring months an abundance of mucilaginous fluid, called sap, flows through this portion of the plant, enriching and nourishing the new cells, which, at this season, are forming immediately under the bark. The cellular tissue can then, in its young and tender state, be easily torn apart, hence *budders* say the "sap runs."

Next we observe what is usually termed the heart-wood, which presents a mass of woody fibre in little bundles of a wedge shape, interspersed with cells, and what are known as *ducts*,—the latter being cells of large size and of various shapes, frequently several together not unlike the links of a chain, either dotted on the surface or with spiral thread-like marks winding around them. In the centre of our picture we observe the pith, which is nothing more than a beautifully arranged system of cells, mostly of a hexagonal form, whilst its surface is encircled by the *medulary sheath*, a delicate membrane composed of curious spiral vessels, or rather ducts. We also notice on our transverse section, at regular

intervals, a series of lines connecting the pith with the bark, consisting of cellular tissue of the same character as the pith, and known as the *Medulary Rays*. We have thus hurriedly reviewed the inner structure of a yearling branch; but in the older portions we notice other changes too important to pass over in silence.

The annual rings in a tree are the yearly deposits of vegetable growth, consisting for the most part of woody fibre interspersed with ducts and vessels, and evenly arranged in concentric circles, so that generally we can accurately detect the age of the tree. As our Northern fruit trees all belong to what are known as *exogens* or outside growers, the wood year after year is formed on the outside of the previous season's growth, whilst that of its predecessor ceases to be of any importance to vitality, but appears to act like the older roots, as a protection and support against high winds or other extraneous causes. The flow of the sap does not pass through this inner or heart-wood, for many specific reasons. After maturity the walls of the wood-cells become hardened and unfitted for the transmission of nourishment through their parts, and at the same time they show a deposit of coloring matter not observable in the younger or outside portion. Thus in the wood of the apple or pear the handsome orange color of the heart-wood marks the period of rest, and so far as assisting growth is concerned, it is a rest *forevermore*. Not so with the sap-wood; here the cells and ducts are young and full of vigor in a healthy tree, and every portion is constantly conveying nutrition to the various departments of the whole structure. All this may sound like bold doctrine to some, but it is nevertheless substantiated by careful examination and study of these wonderful and interesting organs.

CONTENTS OF CELLS, &c.,

Before closing my remarks on the elementary tissues of the wood, I desire to explain the contents of cells and vessels, as this portion of my subject is of more importance than would appear at first glance. When we consider that this is the point where the diseases of plants first make their appearance, and at the same time where nutrition is stored and thence distributed throughout the structure, we cannot doubt its importance in solving the problems of vegetable life and health. Of all the substances found in the cells of plants, none are more frequently met with than *starch*. In the form of fine grains, either singly or connected together, it is stored away in considerable quantity to afford nutrition to vegetable life, the grains themselves varying in size from the 4000th to the 240th of an inch in diameter have a striated appearance, which, together with their general outline, remind the observer of miniature oyster shells. Whilst some plants, as the Potato, Arrow Root, and our cultivated grains, yield this substance in large quantities, other species are not so prolific; and again the young bark of some Pines and Birches supply it quite abundantly. It forms a distinguishing feature between the animal and vegetable tissues, as in the former it is never found, although a substance analogous to starch has been noticed by Gottleib. Its presence can always be detected by the application of Iodine to the cells, when the starch grains will immediately assume a blue color, and weakly diluted sulphuric acid with prolonged heat will convert it into a gummy matter similar to that which is produced during the germination of seeds. The value of starch as nutriment to the plant may be considered when we ascertain that its constituent parts are composed of Carbon, Hydrogen, and Oxygen, the last two forming the elements of water. As to the nature of the cell walls or cellular tissue, you are probably well aware they are composed, in a great measure, of a substance termed *cellulose*, which is not very unlike starch, and can be changed into the latter by various chemical agents. By the application of Iodine, it becomes yellow in color, although if sulphuric acid be added, it becomes blue like the iodide of starch. Cellulose is found in many of the integuments and woody fibres of many of our fruit producing trees and plants, as, for instance, the hard bony seed cover of the Peach, Plum, Cherry, &c., as well as the *tes* or tough outer covering of the Apple, Pear and Quince seeds. In the cell walls it is found in their outer membrane, and by its properties the cells are fastened together; differing in one respect from starch, although the discovery is of comparatively recent date, cellulose has been discovered in *Mollusks* and other low forms of animal life.

(To be Continued.)

THE ENGLISH SPARROW.

BY MR. JAS. SCOTT, NEW HAVEN, CONN.

The English Sparrows get much credit for the extermination of the Span Worm in New York and Philadelphia. Is there proof that

they had anything to do with the matter? Did any careful observer see the birds eating these worms freely enough to secure the result claimed? The Span Worms have their periods, and come and go without thanks to the Sparrows. New Haven is famous for trees, and after laying them bare, the worms covered the face of the earth and swarmed upon the houses. But when they left New York, they also disappeared the very same season from New Haven, although there were only twelve sparrows in the city, sent as a present to the Mayor the preceding winter. I often watched these birds, and concluded the worms had nothing to fear from them. After much inquiry, I found no person who had seen these worms used as food by the Sparrows or any other bird, except very rarely by the native yellow bird.

When the regular period returns, you may, perhaps, have plenty of worms and Sparrows too.

HORTICULTURAL NOTES FROM AN AMERICAN IN ENGLAND.

BY E. L., KENT.

Since writing to you last, I have left the neighborhood of London, and am now engaged here with a florist and fruit grower. We are busily engaged getting ready stock for spring sales, and also anticipate a good profit from our graperies. We have two grape houses, one of which we force early. Last year the crop sold at Covent Garden Market for $1.25 per lb. We are putting in a large lot of cuttings of the shrubby Calceolarias, which grow and sell so well in this country; we grow them through the winter in cold frames protected from frost, and find they do well that way. They prove to be a cheap article to entice custom in the spring, and we grow them in quantity on that account. We were pricing stock the other day in one of our chief nurseries, and I think the prices would enable Americans to import at a good profit. For instance, large handsome specimens of Libocedrus decurrens, 5 to 6 feet high, are sold at six shillings each. This evergreen is known here as the Thuja gigantea, a fact worth recollecting. A nice new thing we saw was the Thuja erecta viridis, a splendid looking evergreen. I wonder if the Golden Hollies would do well with you? No doubt they would further south. The Ilex aquifolium, "Golden Queen," is a most beautiful thing if it would only stand your winters; any nurseryman could make a fortune by getting it. Ampelopsis Veitchii is rather scarce here yet, it is advertised but very little. The price, I found, was twelve shillings per dozen, without pots. Many of your systems of propagation, grafting of evergreens, &c., I do not find practiced much here.

I notice a firm near here advertises Libocedrus decurrens, at 3 to 4 inches, six shillings per dozen. I suppose they are not grafted, or they would be larger in one year than that, but must be cuttings or seedlings. The nursery we were through has an undulating surface, with soil a gravelly peat. Rhododendrons here were very fine, as also the Sweet Bays and Laurustinus; the latter sell for three shillings per dozen. The Euonymus japonicus gets killed to the ground here every winter, and yet it stands the winter with you, does it not? I have not heard that it gets killed so badly in other parts of England. The Berberis Darwini reminds me much of your Dwarf Pyracantha,—such neat, pretty leaves. Some fine Deodar Cedars, 12 feet high, sell for twenty-one shillings each.

What a gem is the new gem in the Geranium line, "Payne's Perpetual!" I had the pleasure of meeting with it at the raiser's place. It is impossible to conceive what a short jointed, stocky little thing it is,—a whole greenhouse was filled with little fellows in 3-inch pots, and although near mid-winter, they were a blaze of scarlet flowers. I bought one plant at two shillings and sixpence. I must close my note book for this mail, but may give you a few more notes another time.

NOTES FROM DUBUQUE.

BY F. A.

The Kilmarnock and American or Fountain Weeping Willows are perfectly hardy here, but the stock on which they are usually grafted is not so. I have tried to graft or bud them upon our native timber willows, but did not succeed; out of a dozen Kilmarnock buds, only one united, which started to grow immediately, but was broken off accidentally. The Fountain Willow seemed to unite very well, but, towards fall, turned black and died.

Is there anything peculiar about propagating Weeping Willows? and which is the better way, grafting or budding? It is a pity if we must give up these beautiful things. I am testing all the

varieties of trees I can get. I find that the Irish Juniper won't do here when exposed to the winter's sun; it stands some severe winters unscathed, when an apparently mild winter injures it seriously or kills it to the ground.

Do you think I would have any chance with the "Libocedrus decurrens?"

This has been a good fruit year in this section. Out of over 30 varieties of grapes, the only one that mildewed with us was Allen's Hybrid. We had Northern Spy apples measuring 13½ inches in circumference, and weighing 1 pound 6 ounces. It is remarkable that the Northern Spy, large or small, does not *keep* this year, although they were hand-picked off the trees and carefully put away in a cool, dry cellar.

[The *Salix caprea* is the parent of the Kilmarnock Weeping Willow, and is the stock on which it is worked. The only difference is, that the weeping form is of the female sex, and the stock is the male. Unless it is really a fact that the female form of these willows is hardier than the male, it is strange that the one should live and the other die. Sometimes the stock is liable to be attacked by a thread-like fungus, which goes usually up and down the stem in a zig-zag line for several inches, killing all the living bark near the line; and often extending all round, when the stem is practically girdled, as in the fire-blight of the pear, and then the stock above the injury dies, apparently before the graft, and this may be how it is in our correspondent's case. Another stock might be found by experiment, but at present no other than the male of *Salix caprea* is known. Willows are very capricious in grafting. Some succeed very well by taking up the plants and keeping them in cellars, grafting in winter and setting them out in spring,—others graft the plants in the ground, taking care that the stock is a little in advance of the scions, and others bud in the summer time. The exact time, however, has to be found out by practical experiment in each location. But even in places where they graft or bud them regularly, they sometimes fail through the exact conditions not being known.

The Irish Juniper ought to be hardy at Dubuque; but really no evergreen likes either much sun or wind in winter, and where rare evergreens are to be tested, they should always have a shelter from sun or wind by cheap, rapid-growing deciduous trees or shrubs. The *Libocedrus decurrens* we have seen at Detroit perfectly hardy. This is exactly in your latitude, although latitude is not the great guide, for we believe from Detroit the warm line extends southerly of west.

We shall be glad at any time to have further notes of your experiments, failures and successes.—Ed.]

HEATING BY HOT-WATER.

BY MR. WM. SAUNDERS, WASHINGTON, D. C.

The discussion on heating greenhouses appeared to be somewhat epidemic during the past summer. It seemed to break out simultaneously in the *Gardener's Monthly*, of Philadelphia, and in the *Gardener's Chronicle*, of London. The latter periodical has had a series of weekly articles on this subject. (My opinion of them would be expressed in noting them as a series of *weakly* articles, at least, so far as they tend to lead to any improved application of the principles of hot-water heating).

It is not my intention to review any of the articles, but simply and briefly to state that one of the greatest obstacles to a free and *rapid* circulation of warm water in the pipes, arises from the prevalent mode of laying them *with a rise*, as it is termed, from the boiler. Water does not naturally run up hill. Power must be expended in causing it to circulate through a long line of pipes on the ascent; and the rule that governs compensation of forces cannot be anulled. The highest part of the entire range of piping should be as near to the boiler as practicable; and from that point the pipes should be laid on a gradual descent until they again enter the boiler,—that being the lowest point. I have invariably found it advantageous to alter pipes, when necessary, to bring them into this position; and have made bad circulation perfect by this simple and easily understood process.

The fewer turns or bends in pipes the better; and where several pipes are fed from one flow, these diversions should be made as near to the boiler as practicable.

These few rules are, in my judgment, the most important in arranging pipes for hot-water heating.

[We quite agree with Mr. Saunders. We understand he has some pipes fixed in this way; the pipes and boiler forming a triangle, in which the boiler constitutes the whole of one side.—Ed.]

EDITORIAL.

RECOLLECTIONS OF TRAVEL.

One of the peculiar features of the Rocky Mountain region is the loss of all our general ideas of distance. A place which seemed but a few miles away, we find to take a dozen miles to reach; and when you hazard a guess that a certain little hillock may be a hundred feet high, you get the wagoner's scornful bet that it is well nigh to a thousand. So it was that, after supposing over and over again that we must surely be at the foot of the pass that was to take us up into the mountains, we found ourselves at last really there. At once began the ascent, winding around the hills, by the little water-worn water-courses, made in the spring by the melting of the gathered snow. The vegetation of the Pacific, marching on to meet that of the East, here first welcomed us. The first to offer us a greeting was the Western Snowberry, which was just ready with its white-waxen racemes to show us how beautiful it was. The berries are not round, as in our white garden snowberry, but oval, and as densely set as the red one. The habit of the plant is also better, and it will be a favorite whenever it gets into cultivation. The *Acer glabrum*, the Rocky Mountain Maple, was also in fruit. Its leaves are smaller than the Red Maple, and the plant seems to make little more than a strong-growing shrub. With the exception of a few alders, birches and cottonwoods, along the water-courses, there are no trees but pines; and these are so scattered and poor-looking, that after our first ideas of grandeur wore away, we began to regard all that we had read and heard about the luxuriance of the Rocky Mountain vegetation as simply travelers' tales. The most striking of shrubs, and these are more numerous than the trees, is the *Cercocarpus sericeus*. This is allied to the Spiræ botanically, but its long, silky seed-tails give it an appearance not unlike our common Mist Tree, though, as the seeds are scattered, it is not so effective. The various species of *Ribes* (gooseberries and currants) are the most striking. None of these have fruits larger than common currants, but with their numerous berries, some black and some red, they made our route ornamental, if the fruit was not really so good to eat as some of our company and the native squirrels and sage hens seemed to think they were. The mountains seemed to be chary of berries or any thing in the shape of fruit. Besides these currants, our hungry fellow-travelers seemed to enjoy the Choke cherries,—but this was all they could get. There is not a blackberry bush in the whole region; and the raspberry (*Rubus strigosus*) of which, here and there, we find a stock, seems rather to mock the luscious berries which we find in the lake region of the Northwest. With the exception of a solitary specimen, near Pikes' Peak, of the Mountain Ash, (*Sorbus sambucifolia*), with pretty scarlet fruit larger than our Eastern species, we do not remember any other eatable berries through a course of several hundred miles.

Even the pines, which alone compose the timber of this region, are not near the size of the same species on the Pacific coast. The leading pine here is the *Pinus ponderosa*, but sodegraded that on a first acquaintance some of our botanists, though very familiar with the Pacific trees, supposed it to be "something between *P. resinosa* and *P. rigida*,"—and it was not until after many days of daily examination, that it become clear to be really the great ponderous pine of the Northwest. Our English friends, so fond of making new species from a few specimens, should walk a few hundred miles, as we did, through these Western tree forests, and our nomenclature would surely have fewer names. Here in this experience, the little spines at the end of the scales were of all lengths to none at all—the cones of all forms, from nearly as round as any of *Pinus rigida* to three times the length of the width,—and in size were from two to five inches long. The color and length of the leaves also varied remarkably, but all showed unmistakably one common origin. There was another matter in connection with this species of Pine which interested us particularly. Our track was in the trail of a tribe of Ute Indians, and these had, a month or so before—about midsummer, our informant said—stripped off the bark of a large number from near the ground to six feet in height, for the purpose of scraping the inner face as food. Though completely girdled in this manner, they appeared not to suffer, and there were no dead trees to mark any fatal effects in the past years. It seemed, indeed, that a new bark grew out to take the place of the old

ones; but of this no instance was seen to enable one to speak positively about it. The *Pinus ponderosa*, when growing thickly together, is, like all pines in such circumstances, somewhat naked; but when they stand out singly, they make beautiful objects. Along the tedious route through the South Park, it was our chief consolation. Wherever there was any elevation, it was more than likely to be crowned by scattering specimens of this species, all the upper portion forming a dense round head, while from the middle down they had a recurved, somewhat pendulous habit, which made a pretty contrast with its general heavy appearance.

The only other Pines of all this region, are *P. flexilis* and *P. edulis*. The former grows at about the same rate as *Pinus cembra* of Europe, and is a very beautiful species, of only a medium height. The wood is very fragile, and the leaves being densely set and heavy, collects the snow and breaks. It was only here and there that specimens were seen. It seems widely scattered, but not abundant anywhere. One of the prettiest Pines is *P. contorta*. This reminds one so much of the *Pinus Banksiana*, as seen by two of the party in the Lake Superior region, that it was accepted for the fact, and not until all the specimens had been past was the error discovered. Other botanists have passed it in other times for *Pinus inops*; and yet, when examined, it seems distinct from all. It makes only a medium-sized tree, and grows as thickly together as the sand Pines of New Jersey. From the few isolated specimens that we were able to see, it seems to take on a columnar form as the Banksian Pine does, and this, with its pretty sea green, will make it valuable for ornamental planting. The other, *Pinus edulis*, we did not see until, after many days of journeying, we reached the vicinity of Pike's Peak, in Southern Colorado. Here it is little more than a stout shrub, having at a distance the look of beautiful specimens of Siberian Arborvitæs. The highest seen did not exceed 25 or 30 feet. The wood, however, is popular as fuel. Pinon—Pinyon as it is pronounced,—commands a fair price at the settlements for this purpose. From a young specimen in our own grounds, the Pinon or *Pinus edulis* was not highly appreciated; but as seen here, we came to regard it as one of the most promising to our ornamental grounds.

Of the Spruces, the Douglass (*Abies Douglasii*) and the Menzies (*A. Menziesii*) were more gregarious, and occupied at times rather dense tracts as forests along the steep hillsides; occasionally a few specimens would be found by themselves, and then they well rewarded our admiration. The Menzies Spruce never spreads widely. It was no uncommon thing to see specimens perhaps 50 feet high, which were not more than 10 feet wide, tapering up gradually like a church spire. Few of these pines exceeded 100 feet high, and 6 feet in circumference. By the aid of Mr. Robert Douglass, of Waukegan—a most admirable traveling companion, by the way—we measured the highest Douglass Spruce we could find, which proved 136 feet high and 8 feet in diameter. A Menzies Spruce of about the same height, girthed the same also. The other Spruce, *Abies aristata*, we saw for the first time in a living state as we entered the south park. This is one of the most unpine-like of all the Pine family. All the others more or less conical, this one wanders away into long, wand-like branches, which often make a tufted broom-like appearance. Only for the unmistakable evergreen needles or leaves one might readily take it for a deciduous tree. The leading shoots seem to elongate without much branching of the laterals. These continue short and slender during the whole life of the tree. *Abies grandis* the writer came across first in the vicinity of Pike's Peak. Wishing to complete the preservation of his specimens by the gray morning light, he had not dusted the sand from his night's blanket, when word came that the party were ready for the ascent of the mountain. Being somewhat egotistically—as friend Elliott would say—inclined, it seemed a very easy thing for a fast man to catch a slow team, so the work to be done was done leisurely, and the party was followed. But the trail was soon lost, and in a tangled mass of scrub oak and immense rocks on every side, there was nothing left but to go on alone or return; of course we chose the former, and we soon found "ourselves," although now in the singular number, following the course of a beautiful mountain stream, which, as it leaped from rock to rock, made a sweet music which would not let us feel all alone, notwithstanding the utter absence of beast and bird and everything animate from this region as far as any one could see. Sometimes the stream would be entirely lost to view from the immense rocks which, during the course of ages, had rolled down the steep hillsides and covered

the water's face. On these rocks vegetation would soon gather, and at times huge trees grow up, as if the world had ever been as we saw it then, —only for the roaring of the falling waters underneath this apparently solid ground, which ever and anon came up like a wail from Tartarus, as now and then a cleft through to the water allowed the sound to ascend. It was on one of these naturally artificial rock-bound gardens that we first saw Abies grandis—a beautiful little specimen of about fifteen feet high, clothed with foliage to the ground, and which, though in the midst of scenes suggesting anything but money values, we could not help setting down in our mind as worth $100. The region for the full forest of them was soon reached, and our enthusiasm knew no bounds, when we saw the *Parsonsiana*, *Lowii*, *lasiocarpa*, and we knew not how many others, altogether in one lot. At first it seemed that a new species had been discovered, and it was not long before the top of one was reached for the cones. These were of a pure white color, and nearly round; while the cones of all seen up to this time were purple and elongated cylindrical, more like our Balsam Fir, but nearly as large as the Silver Fir. Our variety,—or as our friend Elliott would perhaps say, our egotism,—got the better of us, and we felt how surely we could have a laugh with our friends on the morrow, who, though first off for the Peak, were not first in a new species of the Pine family. But as we journeyed on further, we found to our egotistical discomfiture, that all these varying forms were undoubtedly but one thing, and we reluctantly threw our chance for a new species away. But here we may note, for the benefit of our friends in England who we see to this day are puzzled about this matter, that although the forms are distinct enough to make it worth while to select the best, and name and propagate them as we do the forms of arborvitæ we see in our seed-beds,—the elevating them to the rank of species would surely fail by a day's visit to them in their native places of growth. But the next day's report from the party who did find the Peak, brought us news of a spruce high up in the clouds, which we did not see—the *A. Engelmanni*. This is a dwarfer mountain species, allied to the White Spruce of Canada, and we suppose will never be very valuable for garden purposes; and with the exception of the eastern and western Cedars, here ends the whole forest tree list of 300 miles of the Rocky Mountains.

The only other tree represented in the mountain forests, is a small oak, *Quercus Neo-Mexicana*, but this seldom grows more than 15 feet high, and barely ranks as a tree; usually it forms but thick sturdy bushes, very useful in helping one down the steep, rugged hillsides, as we well know, having made a mile of descent in three hours by their aid.

Another interesting feature of this part of the Rocky Mountains, is the several species of hardy Cactuses, which, when they shall come into general cultivation, will be unique ornaments in our out-door gardening. The most common is *Opuntia Missouriensis*, a flat fronded form, with an abundance of long, slender, white spines, almost as pretty as the *Pilo-cereus senilis* or "Old Man Cactus" of our choice collections. In the Monument Park we found some covered with the real Cochineal insect. It was new to us that this insect would endure so much cold as must occur in this latitude in winter; and it might be well worth while for those who are interested in the earth products of these dry plains, to introduce the spineless forms of *Opuntia* for the purpose of raising them, we will send seeds of *O. Rafinesqui*, the smooth form, to any one who may wish to experiment in Cochineal culture in these districts. Another cactaceous plant of great beauty is *Cereus virescens*; this grows upright, about 8 inches high and two to three inches thick; and the red and brown columns of short spines, running up and down the short, thick, green stem, has a very pretty effect. Then we have *Mammillaria vivipara*, a very pretty thing of the "Pincushion" class; and far more beautiful than the tender ones which we see at times in greenhouses. But perhaps the prettiest of all is the *Echinocactus Simpsonii*, which makes a globe of white, slender spines about four or six inches thick. The appearance of the plant is that of a small *Mammillaria*; but Dr. Engelman decides it to be a true Echinocactus.

In these mountains we find ourselves in the home of the Gentian, Pentstemon and other well known plants, more or less adapted to garden culture; but few things interested the lovers of flowers in our party, more than a beautiful clear white flower, very similar, but superior to our Sweet Alyssum; opinions were freely given that the introduction of this plant would be a great boon to cut-flower folks. It proved to be the *Lepidium montanum*.

To a geographical botanist the most interesting part of a tour through this portion of the

country, is to note how nearly the flora approaches to the flora of the old world. Indeed, plants which years ago greeted us in the mountains of Europe were here for our inspection over again. The *Polemonium cœruleum* is very abundant, and the oak before referred to is much more nearly related to the English than the White oak of the Eastern States. Most of the grasses are the same as the European,—and one of them the "Bunch Grass" of the Graziers, is the *Festuca duriuscula* of England. Another *Festuca*, *F. ovina*, also English, is very abundant. These with an American, the "Gamma" grass, *Boutelouia curtipendula*, make up most of the grass forage of this region, and give a remarkably peculiar appearance to the "pasture" lots. Those who are familiar with what they call in Europe "Fairy Rings" in the grassy meadows, know that a fungus grows up in the grass, and that as it matures little white thread-like fibres radiate in every direction, destroying the grass for a considerable distance from the original centre, and leaving a dry dead spot. The Gamma grass and the *Festuca ovina* do pretty much the same thing. A piece establishes itself, and the stolos or offsets push outwardly for a short distance, perhaps a quarter of an inch or so, and the centre part dies; the next year the living circle increases in diameter by the growth before and depth behind, until at times a dead space of a foot or more will be enclosed by a rim of short green grass of from half to one inch in diameter. Why the seeds which one would suppose to fall, do not drop into this little barren basin and thus again fill it with living green, we cannot tell; but possibly here, as before noted by the author in regard to the blackberries of the East, not a millionth part perhaps of all the seeds which fall ever grow. The other *Festuca* always seems to be in a bunch, and never has a hollow centre. It gives a peculiar gray color to the herbage, and it is interesting to observe how the mules and horses in grazing will carefully feel their way through all other vegetation in search of this dried up looking stuff. "But," says the driver, "there is nothing fattens them up like this bunch grass."

Our route lay across the basin of the South Park, for perhaps sixty or seventy miles, and did not charm us as much as it seems to have done other travelers. A perfectly level plain from fifteen to fifty miles wide, with low rises of half dead trees faintly outlined in the distance on each side of one,—with no animated nature to enliven the scene,—and few flowers but the everlasting *Asters*, Golden Rods, *Grindelias*, *Linosyris*, and *Oxytropus*,—with not a motion, except what is made by the upward quivering of the sun-baked air, is all interesting enough from its novelty, but hardly worth the lavish language of some who had been over the track before us. But day after day of this kind of experience was at times relieved by some few snatches of extreme beauty. Once in a while the scrubby vegetation of the hillier country would wander down to the more level land and grow in thick clumps, now forming circles and ovals, and now lengthening out in lines of varying thickness, which would have furnished the most fastidious critic in Landscape Gardening material for the most unbounded enthusiasm. Again the terraces, often bounding the shores of the plain, up against the higher land, were often bayed out for miles, and yet so regularly graded and sloped as to compete fairly with some of the most famous specimens of the handiwork of man; and these especially when they were "planted tastefully," as one might almost say of some of these efforts of nature,—with the often fantastic specimens of *Abies aristata*, made up a piece of real garden work which came near redeeming the character of the one who first dubbed this place a "park." As, however, we approached the exit of this weary drive, matters of interest became more frequent. One of these was the remains of a fossil forest, which must have grown here when the Rocky mountain land was more nearly on a level with the sea, and the climate would bear Pineapples and Bananas without the aid of the protecting laws of Congress. They had evidently been hove up to their present height, about 6000 feet above sea level, by volcanic action, for pumice stone and lava surrounded the stumps and formed the strata beneath the mass of earth on top, which had been for ages gathering from the degradation of the red granite rocks on the highlands near. One of these stumps, which the writer measured, was *thirty-six feet in circumference*, and then showed no sign that the bark was there. A piece which we managed to get, not perfectly petrified, seemed to indicate that it was closely intimate with the present mammoth *Sequoias* and *Taxodiums* of California.

On leaving the South Park for the journey to Pike's Peak, the scenery was grand beyond conception. In ascending to the heights of the Rocky mountains, an impenetrable wall

of hills on each side prevented us from seeing much but toward the sky; but now we could get glimpses of hills and valleys often miles away, some with the clouds rolling lazily over the tops, and tumbling over the other side like mammoth sheep in the folds of heaven,—and then others with their piny wooded sides extending down thousands of feet to little narrow water courses which glided round their bases like a setting of silver to emerald gems. This is the character of the country in the vicinity of the score of houses known as Colorado city, all in the vicinity of Pike's Peak; and as the Narrow Gauge railroad has been completed to this place since we left it, it will soon be in the full line of travel, and thousands of eyes feast on the beauties of the spot which has, till now, been an unknown land to all but savages and the few hardy pioneers who could not appreciate it. There is one feature of this place apart from its singular beauty, which will ever make it attractive, namely, its mineral springs. These boil up in vast columns from the solid rock. Our camp was pitched one night near them, and as sugar and essence of lemon were not quite strangers amongst us, we lay and watched the drinkers round that spring as they drank and quaffed, and talked, and laughed, with a grateful prayer to Providence that though so exhilerating, the cup was not of the intoxicating kind. The sound of the carpenter's hammer and saw was

ard even here. General R. M. Cameron, one of the original founders of Greeley, was making a hotel to accommodate 250 guests; and General R. M. Palmer, of the Denver and Rio Grande Railroad, had already built a beautiful dwelling in a highly romantic spot, named "Glen Eyrie." These and many others whom we met about here were enthusiastic,—some over the healthfulness of the place, and others that so many of the fruits and vegetables of the East could be grown to perfection here; but to us, if we were on the look-out for a new place to settle, the glorious beauty of the landscape would be an inducement which would over-ride all other considerations.

The route from Colorado Springs to Denver was along that part of the country known as the divide,—a rather flat and sandy ride of about 100 miles. In this we found occasional ranches all with admirable crops, sleek cattle and prosperous families. They seemed to be chiefly from Pennsylvania, New York and Ohio, and always looked glad to see a face from near their old homes.

WONDERFUL GROWTH OF PEAR TREES.

Since the fizzle out of Professor Porter's Pear orchard, which turned out *not* to have been planted on the plan which we have always recommended, our respected contemporaries have to fall back on neglected trees.

The *Country Gentleman* gives great prominence to the following: "A correspondent in an eastern county of New York lately met with a case where the experiment had been tried for five continued years, for the purpose of seeing the difference between allowing young trees to stand in grass, and keeping the ground mellow by cultivation. A dwarf pear-tree was planted in a large flower-bed where the soil was constantly mellow, and another a short distance off in sod. The tree in cultivated soil, at the end of five years, was four times as large as the one in grass; and a standard pear tree, under similar treatment, was eighteen times as large as the other standard not cultivated." *Eighteen times* as large in *five years!* We will suppose the two trees to have been both an inch thick when planted, and that the one stood *entirely* still. The other one eighteen times larger would be eighteen inches thick—*four and a half feet in circumference* in five years! It is, however, hardly to be supposed that the other tree grew none; we will modestly give it two inches for its present size, and we have the remarkable spectacle of the other tree, one inch when planted, coming to be *nine feet in circumference* in five years!

But suppose eighteen times as large refers to height and not thickness of trunk,—and giving one foot of growth only per annum to the poor tree—five feet in five years, and the original height four feet only, nine feet in all, we have the other "eighteen times larger," *one hundred and sixty-two feet high* in five years; or, to give this wonderful tree still a more favorable chance, say only the growth of the past five years increased eighteen times, we have a growth over the favored tree of *ninety feet in height!*

We think this great blow at "Meehan's theory" may go the way of Professor Porter's.

It is proper to say that we overlooked the paragraph in the *Country Gentleman*, but find it credited in the *Maryland Farmer*, the editor of which adds, "We have frequently met with similar cases with results not greatly differing from these!!"

That there should be some difference be-

tween a tree *and* grass, and a tree alone with all the food to itself, one would think it needed no experiment to try; nor would it be necessary to send to an eastern county in New York to find abundant proof; but we think few of us were prepared for such astonishing results as these, and they are worthy of the most extended circulation.

SCRAPS AND QUERIES.

DOLLAR AND CENT HORTICULTURE.—A valued correspondent in Ohio says:—I think there is some progress in horticulture in our State, but it is almost all of a commercial or *dollar and cent* sort; and on this account the readers of such magazines as the *Gardener's Monthly* are too few.

[Never mind, horticulture for pleasure is growing faster than you believe. We know where Ohio is in this regard. They have found out there that when they die they cannot take a dollar with them, and will enjoy some of it rationally while they are alive.]

MR. ELLIOTT'S LETTER.—Thos. Meehan, Esq., Dear Sir:—I cannot refrain from giving you some expression of my indignation at the singular letter of F. R. Elliott in the January number, just received. I know you neither need defence, nor favor the saying of much on any point of disagreement; but there are, unfortunately, some writers always ready to disparage anything written or done elsewhere.

As a fruit grower in western New York, before any single one of the present New York writers had existence as pomologists,—one who took and faithfully read the old *Genesee Farmer* from its first to its last number—and as connected at different times with almost all the agricultural societies of the country, and closely observing the facts of fruit growing in many States, it is simple truth to say that I have nowhere seen such invariably candid, correct and faithful treatment of the subject, as in the *Gardener's Monthly;* and I felt and expressed this opinion as forcibly before I had the honor of your acquaintance as I do now.

I have always been struck by the very great diversity in actual experience with fruits in different localities; even in different exposures in the same general locality, and I would never think of declaring any variety unworthy of cultivation because of unsuitableness to the particular spot on which I tried it. And any notable success attained by another cultivator with what has failed in my case, interests me as much as my own success does. Indeed, there is no other way to succeed in fruit-growing in small fruits and vines, as well as in orchard fruits, *but for each cultivator to thoroughly try a large number of varieties.* In spite of all assertions that this or that will not succeed, let him faithfully try a large number, and he will be rewarded according to his exertions. My father tried this plan years before I was born, and the consequence was that fine heart cherries, declared unsuited to the climate by others, were, with him, a great success. Peaches, nectarines, rare plums and apples in great quantity followed the same rule.

The most unpleasant thing of modern pomological criticism, is the short and summary way with which one is snapped up with assertions of inferiority of this or that variety which the critic has failed to see favorably. Many persons are repelled from attempts at cultivation solely by this haste of rejection, when the true course, in my judgment is to favor experiment and development at the cost of being somewhere mistaken.

While diffusing fruits of every sort freely all my life, without selling a dollar's worth, (of trees, roots or grafts) I have never seen occasion to condemn or to doubt the fairness of those who do make it a business. The Adirondack grape is worth nothing in my garden, yet I know it deserves all its originator claims for it in more northern latitudes. So of the Hartford Prolific and the Catawba; still more worthless are Tokalon, Maxatawney and half a dozen others; yet Rogers' Hybrids are marvellously prolific, and Concord, Christine, Diana, Delaware, and two or three others are unfailingly good.

My own judgment may possibly be influenced

by your most generous, yet I hope just treatment of my own suggestions at various times, yet I have heard so many strong and earnest tributes to your singular clearness of judgment, your candor, justice and impartiality, as well as to your scientific accuracy in strict botanical distinctions, that I feel indignant at such a letter as that appearing in the *Monthly*. I hope Mr. Elliott will render due apology on seeing how grossly he has offended

Very truly and respectfully yours,

LORIN BLODGETT.

[We have received many letters of a similar import to Mr. Blodgett's, and do not know that we should have inserted Mr. Elliott's if we had thought it would make our friends feel so badly about it. Still we trust it will do good. The idea suggested by Mr. Elliott, and to which we took exception, that almost the whole of the new grapes sent out during the last 20 years, were sent out for no other reason than because they helped the tradesman's occupation, implying that the originators knew that they were distributing a worthless article, was certainly too sweeping, and we were quite willing to brave Mr. Elliott's displeasure in our comments on it.]

TO CORRESPONDENTS.—We are obliged to those of our readers who send us "scraps" for this department,—they are often as useful as long communications, though we value all.

We have some on hand which we should have noticed this month, only for an unusual pressure of matters requiring attention at this season, so that our friends will not deem their favors unwelcome if they are not at once noticed.

MR. HARDING'S LETTER.—In our publication of Mr. Harding's letter, the types made him say *Terama speralis* instead of *Zamia spiralis*, and a few other similar errors. Of course these errors are annoying, but they unavoidable where the author does not get a chance to correct his own proof. Even where they do, it is no absolute security against errors. We have before us now a work which seems to have been through the hands of Drs. Gray, Engelman, Eaton, Watson and others; and yet quite a formidable list of errata appears in the fly leaf. Our friends must remember that "such things must be."

MAGAZINE ON THE BEE.—*H. K. C., Neenah, Winnebago Co., Wis.*—Please give, in your opinion, the best work on the bee, and if there is any magazine devoted to their culture. I am a subscriber to the *Gardener's Monthly*.

[The *Bee Journal*, Cleveland, O.]

ROCKY MOUNTAIN NOTES.—During a recent flying trip to Illinois, the writer picked up a few scraps of paper which seemed to have been torn out of a pocket memorandum book. It would perhaps have been immediately thrown away, but for *Gardener's Monthly* catching our eyes, which of course it naturally would do. It is, no doubt, the production of some green-hand, if not of one who will be ever green. Failing to penetrate all its mysteries, we venture to give it a place, that our younger and more acute friends may try their hands at the puzzle:

"You ask me how I like my traveling companions, oh they are jolly fellows; I like them well, every one of them, indeed much better than I supposed I should. I thought, coming from New York, Philadelphia, New England and Washington, they would have their Eastern notions, and that they would bring their dignity with them, and leave many other things that would be needed here; but I tell you they came well *rigged* for the journey. I supposed they would be hard to get acquainted with, but I found it otherwise. There are finer opportunities to get acquainted camping together on the mountains, than traveling in a ladies car, so that I am well acquainted with each and all of them, and never had a pleasanter time.

A four weeks journey with the *Gardener's Monthly* is a month in a flower garden, and in it the gardens, like all the down East gardens, we have the *Daisie* and *Sweet Williams*, knowing they were coming to a dry country, and as none of them are in the habit of *irrigating*, they brought their *Wells* with them. A company traveling over rugged mountains and camping out, can hardly be expected to take a library with them. Yet I saw *Hoopes* on *Evergreens* (gathering cones). You have all read "Warder on evergreens and hedges," well we had Warder on evergreens; there are no hedges there, but I saw him once sitting on a log fence eating dinner. I saw Professor Wells several times with "Comb on Phrenology," *before breakfast* (when at his toilet), and any one who saw Mr. Clift pulling up those fine fish, could not deny that we had "Tim Bunker on Trout raising."

Speaking of them individually, I may say that I have agreed *well* with *Wells*, been *bound up* in *Hoopes*, as good as *can be* with *Canby*, I have *dodged* around with the *Dodges*, I have been *blissful* with the *Blisses*, I have *eaten* with *Eaton*, kept *ward* with *Warder*, and *bunked* with *Tim Bunker*.

Our delightful trip will soon be over, as we start to-morrow for Omaha. Then *Hall* will *haul off* at Kansas City, *Rural* will go for the *rural* districts, and Douglass will *walk* off for Waukegan."

GARDEN PROSPECTS IN NORTHERN MICHIGAN.—A Plymouth correspondent says: "I had the pleasure last October of a visit from Mr. Chas Downing and Thomas Hogg, who spent a couple of weeks in looking about our State. I fancy somewhat to their entertainment and instruction so far as our local pomology is concerned. The trip was three or four weeks too late to see us at the best, and I regret to say it occurred during the time when fires were so prevalent, which prevented us from visiting several of the most interesting points along our lake shore fruit bill. Enough was still visible to create a wish to see more, and Mr. Downing promises another visit at a more opportune period, and when our R. R. system, now rapidly pushing northward and westward, shall suffice to reach Traverse, which, in latitude 45°, is yet promising to become peculiarly the home of the peach, the grape, and the small fruits generally —and where the Gladiolus, the Dahlia, and the potato are left out, ungathered, exposed to the tender mercies of winter, with nothing but the annual covering of snow for protection.

GRAMMATICAL.—A Washington correspondent says: "Will I be pardoned for expressing regret at such blemishes as 'a full account of these peas *were* given,' 'the *Western Rural* has *rose*,' &c., found in the otherwise perfect and certainly very able *G. M*?"

[The last error was noticed too late for correction, and the other not seen till pointed out by our correspondent. There is no excuse for such outrages on grammatical rules, and we are as much ashamed of them as our correspondent is]

RAISING FUCHSIAS FROM SEED.—*C. H. S., Little Rock, Arkansas*, writes:—"I have a very beautiful Fuchsia—name not known. I bought it last spring from a Memphis florist who had some plants here for sale. It was simply labeled "double fuchsia;" the tube and sepals are of bright crimson, the corolla a very dark blue, sometimes with a spot or two of crimson on it. Last summer it did not bloom, nor did but one out of the four I have; they suddenly ceased growing and shed their leaves in spite of all the care I gave them, repotting with fresh earth, keeping them in the shade and supplying all the water needed. But as soon as they were put into the greenhouse, last fall, they commenced growing beautifully, and this one has recently bloomed and ripened some seed.

Now, what I want to know is, shall I plant these seed at once in the greenhouse, or wait until spring; and will they require bottom heat to germinate? Is it not very unusual for fuchsias to produce seed in this country? As a lover of flowers, I have been familiar with the plant for many years, and never knew of one bearing seed before."

[Fuchsias do not seed very often with us, as our climate seems too hot. Berries with abortive seeds are common. To raise them, wash out from the pulp, and sow in very sandy soil, not covering deep, but covering the pot with a piece of window glass,—and put the pot where it will be light, but yet cool, and if possible in a temperature of about 55° or 60°. The seed will sprout in about six weeks, when the glass should be raised a little so as to admit a little air. The glass is to prevent too rapid a drying of the soil. Sow at once.]

CORRESPONDENT OF THE RURAL HOME.—Our correspondent, Mr. Harding, has been engaged, we see, to contribute a series of articles to this excellent Rochester paper. Its readers will find much to interest them in Mr. Harding's genial pen.

ORIGIN OF MRS. POLLOCK GERANIUM.—*W. H., New Castle, Pa.*, writes: "Please give the native country of Mrs. Pollock Geranium. There has been a difference of opinion between some friends here about it."

[It is an English seedling]

FOREIGN WORKS ON GARDENING.—We often receive letters inquiring of whom to get foreign works on gardening Almost any bookseller or newsdealer can get them When getting their usual supplies from the wholesale houses they order what is wanted, and these again

get or order from the book importers. It is usual with these retail booksellers to take a small deposit from casual customers, with the order,—as several months sometimes elapse before the books come to hand, and the buyer may either from caprice or necessity not relieve the bookseller of his expenses.

TILTON'S JOURNAL OF HORTICULTURE.—CLUBBING—PUBLISHER'S NOTICE.—The publishers of the above journal have informed us since the middle of January, that they "ceased the publication of that work with the December number." Club subscribers who have ordered it through us, are, therefore, informed that the *difference* between the *subscription price* of the *Monthly* and the *club* price remitted for the *two*, is at their disposal, either to be returned or credited on additional subscription account; or it may invested in *Purdy's Small Fruit Recorder* for 1873, if preferred. Address Brinckloe & Marot as soon as possible, and have the account settled.

WONDERFUL GROWTH OF CARICA PAPAYA.—*T. G. R., University of New Orleans, La.*, says:—"On the 8th of April last, I transplanted, from the greenhouse to the open garden, a Carica papaya, a seedling about four months old, and measuring about three inches in diameter near the ground, and two feet high. On the eighth of November, after the leaves had been killed by a hard frost, I cut the tree down, it then measured *thirty-three* inches in circumference six inches from the ground, ten feet high, and weighed, together with a considerable portion of the principal root, *one hundred and twenty pounds*. As in all the members of the order of papayads the great bulk of the plant was due to the water contained in its very sappy stem, but nevertheless was this not a remarkable growth for seven months?"

NOTES AND COMMUNICATIONS.—Many subscribers while remitting for the year send us hints, which we highly value; and help us for many months to valuable matter for our pages. For these, thanks. Such favors are appreciated at any time of the year.

FRUITFUL DIANA GRAPE.—An Oregon, Missouri, correspondent writes about a Diana grape vine owned by Mr Frawley, a gardener in this place. "Mr. Frawley had several vines of this variety, and as he, as well as all others in this neighborhood, failed to raise any fruit on his Diana grape vines, he took them up three years ago. But there was one stock which stood rather out of the way near a blue grass-sod, and he thought it might remain and take care of itself. During summer, the blue grass grew all around the vine, and behold the Diana grape-vine, which had formerly lost its leaves prematurely and never ripened any fruit, was now a perfect picture of health, and ripened a large crop of the most beautiful bunches I ever saw. The vine has continued to grow splendidly in this sod, and ripened its fruit faultless."

NEW PINK BOUVARDIA.—*H. E. C., Paterson, N. J.*, sends flower and says: "I send you herewith a flower-head of a very beautiful flesh-colored Bouvardia, which has made its appearance here among a quantity of small plants of Bouvardia elegans; whether it is a sport from that variety or a seedling plant, I cannot say, but it is certainly Bouvardia elegans in every particular, except color, and if permanent, will be a charming companion for the brilliant scarlet and white varieties."

[A very good form of B. elegans. Sports from this kind are not unusal. They are not seedlings, but sports.]

BINDING THE MONTHLY.—*J. W. K., Denton, Md.*, remitting for *Monthly*, says: "I find that full volumes make a very interesting book for reference as well as solid scientific instruction. If I were limited to but one journal treating upon my business, it would require no study whatever to decide which I would take, for I truly feel that two dollars spent for the *Gardener's Monthly* is the best investment I make during the year, aiding both my mind and purse."

[We print this in order to impress on our readers the importance of binding and preserving their copies. As we have never been actuated by any jealousies; we try to give all the information possible from any source, and thus make our magazine a complete encyclopædia of the horticulture of the day.]

DESTRUCTION OF PEACH BUDS.—*P H., near Dover, Del*, says: 'I have a prospect of fruiting the Mt. Vernon Pear this year. Peaches are pretty much killed,—there are a few live buds"

[Is it not too soon in January to decide on the

destruction of peach buds? The little scales may be destroyed, but the central axis, *we believe*, seldom gets injured before about a month or so in advance of the season of opening.]

A LARGE TOMATO.—The *Louisville Commercial* has the following about a large Tomato: "We were shown, yesterday morning, by W. W. Borden, Esq., of this place, a red tomato, raised by himself, and called 'the Trophy,' which measured 16 inches circumference, 6 by 4½ inches diameter, and weighed 30 ounces. Beat that, and take the premium, who can." And we have before us a letter of Mr. Waring in reference to the same:

"I have just now received your letter enclosing Mr. Borden's certificate. I send, herewith, my circular, in which the terms of the $100 premium are set forth.

The largest tomato sent in weighed 32 ounces, but as this was not of perfect form, the premium was paid to a tomato grown by Mr. T. Hand, of Sing Sing, N. Y., that weighed only 21¼ ozs, Good form was a very important condition.

I am sorry Mr. Borden did not comply with the terms. I would have been glad to pay him a good price for such a fruit as that must have been."

Truly
GEO. E. WARING.

CORRECTION—THE WALTER GRAPE.

POUGHKEEPSIE, *Jan. 23d*, 1872.

Editor Gardener's Monthly.

DEAR SIR:—In the December number of the *Monthly*, in commenting on F. R. Elliott's notes on grapes, you construe his article as pronouncing a verdict of worthlessness on the Walter, Eumelan, Senasqua and a number of others of good, bad or indifferent quality. Mr. Elliott writes us that this is entirely incorrect,—that his notes referred to but one season; and he further writes in relation to the Walter, "I shall use what cuttings I have to grow vines for myself, looking forward to the Walter superseding the Delaware, as I have always written and spoken." This sufficiently shows that in the construction placed upon his notes you were mistaken.

Yours respectfully,
L. M. FERRIS & SON.

[We did not say that his notes referred to more than one season.—ED]

BOOKS, CATALOGUES, &C.

FOREST TREES FOR SHELTER, ORNAMENT AND PROFIT.—A Practical Manual for Tree Culture and Propagation. By Arthur Bryant, Sr.—New York; Henry T. Williams, Publisher. 1871.

The subject of tree culture as a source of profit is only just awakening attention in the West. There is no doubt this is as worthy of the Western mind, as fruit culture or any of the topics of the farm or market garden. Of course there has not yet been many experiments, but such as have been tried, have resulted in so much success that many are encouraged to try further in this direction.

Mr. Bryant's book is a contribution to this good end. He is one of the pioneers in tree culture in Illinois, and is at least as well, and probably better able for a work of this kind than any other person. All that has been done in tree planting in the West is given, and some very good facts and figures placed before the reader to encourage to further efforts. But this is all told in forty pages, and we can understand by this how much is yet before the tree planter; how much is yet to be known about the matter. The balance of the work is made up of descriptions of the leading timber trees which will likely be available; and with the descriptions are many facts in regard to geography, soil, uses, and so on, which will interest those who plant for ornament as well as those who plant for profit.

The getting out of the work in so far as the typography is concerned, is a credit to the publisher, and does no more than justice to the value of the work. It is to be regretted that so much cannot be said of the illustrations, which seem rather adapted to a cheap catalogue than to a valuable book. However, we hope that the book will meet with the rapid sale it deserves; and in the next edition the publisher may be encouraged to do better by the illustrations.

RURAL NEW YORKER.—This is the twenty-fifth year of this excellent periodical. We take

occasion to say a favorable word for it, if it needs it; but ever since the time when an unfortunate fellow took coals to New Castle, and another sent blankets to the West Indies, it has seemed a waste of words to tell what everybody knows. But its recent change of form requires a notice from us. It is certainly much handier, but it does not seem so distinctive as it was. Perhaps this is no matter, for any one who looks inside will find distinction enough to command his affections. It is the milk in the cocoanut which tells the story, and not the hard old shell.

HEARTH AND HOME.—There is no mistake about the improvement of this pretty family paper since it has fallen into the hands of Orange Judd. While it is attractive to young folks, the more intellectual articles are of a solid character, which even those in the highest walks of life value.

"OUT WEST" is the title of a new serial to be published at Colorado city, edited by J. E Liller. Canon Kingsley, the celebrated English author, will be one of its regular correspondents.

LANDRETH'S RURAL REGISTER AND LANDRETH'S ILLUSTRATED CATALOGUE FOR 1872.—The Landreth's have been known in the seed trade for several generations, chiefly, however, in the department of Agricultural Seeds. The "Illustrated" Catalogue shows that they now have added flower seeds and other items to their already extensive trade. The Catalogue is beautiful, and we have no doubt their new venture will be as widely popular as their former business has been.

CATALOGUES.—Our table is full of excellent catalogues. We can do no more than give the following brief notice of them:

Asher Hance & Son, wholesale bedding plants; Geo. T. Fish, list of stocks, &c.; J. W. Coburn & Co., wholesale trade list; E. S. Lee, tree pruner; Harrison & Co., fruit trees; Wm. Morton & Son, trade list of evergreens; Dr. H. Schroeder, price list of fruits; Frederick A. Haage, (Prussia) seeds; Ammon Burr, general retail catalogue; Hoopes, Bro. & Thomas, trade list; Walter Hogg, new plants, &c.; H. A. Dreer, bulbs, plants, &c.; C. L Vandusen, wholesale general list; Hovey & Co., bulbs; Anthony Waterer, list of conifers, evergreens, roses, &c.; C. N. Palmer & Sons, fruit trees, evergreens; J. W. Kerr, nursery stock; J. Monnier & Co., (France) seeds, &c.; Childs & Co., price list; John Waring, nursery stock; Wood & Hall, seeds, stocks, implements, &c.; A. Bryant, Jr., seeds, trees, &c.; Peter Henderson, surplus stock to the trade; Nanz & Neuner, circular of White Crape Myrtle; Jacob Heyser, Conover's Asparagus, &c.; Eugenie Verdier, (France) roses; Dr. John E. Ennis, wholesale special stock; L. W. Morris, European agent; Peter Henderson & Co., seeds, tools; Daily & Co., price list; A. Battles, forest trees; Louis Leroy, (France) trees; Wood & Hall, weeding hook; Geo. W. Frazier, general catalogue; Bryce & Co., (Scotland) seed list; R. Halliday, evergreens; E. H. Skinner & Co., trees, &c.; John G. Wilson & Co., boilers; J. M. Jordan, wholesale price list; R. B. Dunlop, general wholesale list; F. Trowbridge, cranberry culture; Robert Veitch, bulbs; Wm. Hill, seedlings, seeds, &c.; Vilmorin, Andrieux & Co., (France) seeds; Congar & Co., trees, plants, &c.; Eugenie A. Bauman's Sons, greenhouse plants; Mahlon Moon, wholesale trees, plants, &c.; C. C. Langdon, trees and fruits; E. A. Riehl, grapes; Park & Goodyear, trees; Transon, Bros., (France) trade list; B. M. Watson, seeds, &c.; Robt. Douglass & Son, tree seedlings; Peter Smith & Co., (Germany) seeds; Geo. W. Campbell, fruits, plants, &c.; F. Trowbridge, plants and fruits; E. J. Evans & Co., seeds and trees; Lukens Peirce, wholesale trade; B. K. Bliss, bulbs, seeds, &c.; Ellwanger & Barry, general retail list; Wm. Parry, fruits; Maxwell & Bros., trade list; Parsons & Co., ornamental stock; L. C. Lisbey, trade list; Wm. Bull, (England) new plants; Louis Van Houtte, (Belgium) plants; J. S. Downer, descriptive fruit; Allen & Co., bulbs; Graves, Selover, Willard & Co., trade list; Thomas Morgan, greenhouse plants; Geo. Such, new and rare plants; James Draper, fruit and ornamental trees; Miller & Hayes, Plants, &c.; Ellwanger & Barry, fruits; Thomas Meehan, tree seeds, &c.; Frost & Co., nursery trade list; Booth & Son, (Germany) trees; James Vick, illustrated catalogue; J. W. Adams, new fruits, plants, &c.; H. A. Dreer, garden calendar; Storrs, Harrison & Co., chestnuts and plants; Childs & Co., price list; Peter Henderson, illustrated plant; Ernst Bernary, (Prussia) seeds; Haage & Schmidt, (Prussia) seeds; B. K. Bliss, seeds.

NEW AND RARE FRUITS.

BRIER'S SWEET CRAB.—It is said to be not only a very ornamental tree in fruit, but the fruit is luscious to eat from the hand, nearly equaling the pear. Preserved it equals the peach in richness and fine flavor, and wherever the peach and cultivated plum cannot be grown with success, it will prove a good substitute and of very great value.

The President of the Wisconsin State Horticultural Society says of it:—The samples of Brier's Sweet Crab that I have at several different times seen and tasted, also preserves from the same, were certainly *very excellent.* For a delicate and delicious preserving apple nothing nicer could be desired. Also what knowledge I have of the habit of growth, and hardiness of the tree is all in its favor.

WALBRIDGE APPLE IN WISCONSIN.—Trees of this variety of apple were brought by a Mr. Pound, and sold more than twenty years since. They have proved very hardy on every variety of soil and location, and are the most profitable late keeping apple known here. Last season the fruit brought three dollars per bushel, they keeping better than any other variety. They are of excellent quality, and hold their flavor to the last. As a bearer, the tree has no superior, producing annually heavy crops. I gathered from seven trees, in the Walbridge orchard, this season, thirty-three barrels of selected fruit. The same trees produced heavily the year previous, and have never failed a good crop since they commenced bearing, though they have been in sod, with no cultivation for more than twelve years. As a tree and fruit the Walbridge combines more that is valuable to the orchardist than any apple with which I am acquainted.—W. T, Barraboo, Wisconsin.

THE MCADOW CHERRY.—F. R. McC., Chillicothe, O., writes: "I clipped from a paper months ago a description of McAdow's seedling cherry, which I enclose. This cherry has proved to be the best sweet cherry we have ever grown in this section. When other varieties were damaged by mildew, it escapes. I dont think it has been disseminated sufficiently to know if it would retain its good character in other localities. The original tree is still standing in the Dr.'s yard in Chillicothe, and is over thirty years old, and very healthy. The Dr. has the ground dug up around the tree every year which induces it to sucker; these he finds ready sale for at from two to five dollars each.

I sent you a few raspberry plants last Spring by mail, of what we call Chapman's Seedling. I hope you received them, and will give them a fair trial, and report. If those did not do well I can send you more.

"The raspberries did not come to hand. The following is the extract referred to.

"In the second series of the Ohio Agricultural Report for 1869, just issued, the following appears as part of the report of the State Horticultural Society, thereto appended:

"CHERRIES.—There is little to say of new cherries, because of the prevalence of the mildew, which has so badly damaged the crops in many places.

"Dr. McAdow, of Chillicothe, has again exhibited a very fine variety, which he produced from seed years ago, and continues to propagate by suckers. These grow rapidly, and soon produce beautiful trees that bear abundantly in four or five years from planting.

"*McAdow.*—This is supposed to be a seedling cross of the Black Tartarian and Elton varieties. Tree vigorous, handsome, productive, and an early bearer; foliage large, oval, acuminate, and finely serrated. Fruit large, obtuse, heart-shaped, regular; stem slender, deeply inserted; color, bright red or cornelian, shaded; flesh firm, yellow; flavor pleasant, sub acid or vinous: stone medium to large, oval, corinated, and projecting at upper end of the suture; quality a good tender Bigarreau, resembles Elton. Elliott says it looks like *Ohio Beauty.*"

QUINN PEAR—At the recent meeting of the Pennsylvania Pomological Society, some fruit of this were exhibited. They are something in the way of Dana's Hovey, of a russetty brown, larger than Seckels, and though in January, not quite ripe. Still, the sprightly flavor, unripe as they were, gave a promise of high excellence.

LAWYER APPLE.—From South Pass, Illinois, two specimens were on exhibition at the Pennsylvania Pomological Society.

We have noticed this before in the *Monthly.* They were not quite ripe, so as to judge of their quality, but their great beauty attracted general remark: they are large, and round, and

solid, and of a beautiful red color. It is said it is also an abundant bearer Report says it is not of the highest flavor, but it is hardly to be expected any one apple should excel in all things.

MASON PIPPIN APPLE.—Origin, Brunswick county, Va. A beautiful yellow pippin, bearing a close resemblance to the Albemarle Pippin, of which it is probably a seedling, and on sandy soils or in the middle regions of the State it is perhaps superior. Medium to large, bright yellow, shaded on one side with light russet dots; flesh white, crisp, and juicy; rich, sweet flavor. December to April.—*Petersburg Messenger.*

GULLY APPLE.—Origin, Granville county, N. C. Fruit, medium size; form, oblong; color, pale yellow, nearly covered with lively red, thinly sprinkled with green dots; flesh, rich, tender, juicy, sub-acid; keeps till April; tree vigorous, upright growth—much valued where known. For the mountainous or red lands, the splendid "*Pilot*"—origin, Nelson county, Va.—may be substituted.—*Petersburg Messenger.*

"ROYAL ANNE" CHERRY.—This was produced by Mr. Seth Luelling, near Portland. The length of the branch was 22 inches; size of the cherries, 3 to 3½ inches in circumference: weight of branch, 5 pounds; contained 186 cherries. We do not know this fruit (under the above name, at least,), and shall be glad if some of the Oregon pomologists will enlighten us. Where did it originate?—*Rural New Yorker.*

DOMESTIC INTELLIGENCE.

THE GRAPE IN CANADA.—The collections of grapes at the Fruit Growers' meeting of Ontario were exceedingly fine, and some of the samples laid upon the table for exhibition merely were such as to call forth expressions of astonishment from every one. Three bunches of the Wilder grape (Rogers' No. 4) were of surpassing size and beauty. They weighed respectively sixteen, eighteen, and twenty ounces, and were the growth of Mr. Matthew Bell, of Hamilton. It was stated by gentlemen at the meeting, who had seen the grapes growing on the vines, that no ringing of the vines had been practiced. The highest prize for the best collection of ten varieties of grapes was given to Mr. W. Haskins, of Hamilton; the second to Mr. John Freed, of the same place; and the third to Mr. A. M. Ross, of Goderich.—*Canada Farmer.*

PEACHES IN MICHIGAN.—Six peach orchards at Black Lake yield 10,000 bushels. Muskegan yields 10,000. South Haven claims to have shipped 3,000 baskets per day during the height of the season.

PROF. KIRTLAND.—Our distinguished and much esteemed fellow-citizen, Dr. J. P. Kirtland celebrated Friday in a quiet way, in his pleasant home, his seventy eighth birth-day. Few, very few, lives have been so useful to his fellow-men, and none of higher integrity or more spotless character. In his contributions to natural history, in his labor to develop our agricultural and horticultural interests, Dr. Kirtland stands among the first of living men. What an interesting volume would be the history of his eventful life. What wonderful progress in science, in art, in government has he witnessed! At nearly fourscore years he is hale and hearty, and moves among us with a firm and elastic step. May God grant to our most excellent friend yet many years of life and perfect health, and may his evening be full of blessings and full of peace.—*Cleveland Herald.*

THE CITY PARKS OF ST. LOUIS.—M. G. Kern appointed Superintendent.

A meeting of the Park Commissioners was held recently, when the subject of the appointment of a Superintendent was taken up.

It was stated that Mayor Brown would send in the nomination of Mr. M. G. Kern, a professional landscape gardener, provided he received an assurance that the Board would confirm him.

A lengthy discussion ensued, and Mr. Kern was called in. He stated that he was not seeking the position, but would accept it if he was

allowed to manage the park improvements in accordance with his own ideas.

The nomination was unanimously confirmed. The parks will now, it is believed, have a competent Superintendent, and it is to be hoped that he and the Commissioners will work harmoniously together.

"*Let us have peace*" *and good-will among men.* —*Rural World.*

PEAR GROWING IN SARATOGA, NEW YORK. —A correspondent of the *World* says of the farm of Colonel Frank Curtis, at Charlton, Saratoga Co., N. Y.:

"The dwelling-house—a very attractive one —stands in an open lawn, which is dotted with pear and other fruit trees. These—the former especially—were heavily ladened, showing conclusively that pears will flourish well when growing in sod. The secret of success here is heavy surface manuring, together with ashes and "chip dirt," applied closely to the stems and well dug in. A marked neatness prevails in the grounds, and, in fact, all over the farm, the rule being to have but three piles on the premises—one of lumber, one of wood, and a compost heap, and everything in the shape of accumulations or debris finds it way speedily to one of these three places of deposit.

FRUIT BY MAIL.—By the decision of the postmaster at this city, acting, as we are informed, under the instructions of the Post-office Department at Washington, specimen fruits of all kinds sent by mail must have postage paid at the letter rate—three cents for each half ounce. Seeds, cuttings, roots, and tubers, can be sent for two cents for each four ounces. Our friends wishing to send us fruits for name, will please bear in mind the distinction.—*Western Rural.*

LIMA BEANS IN CALIFORNIA.—Captain Jonathan Mayhew, of Santa Clara Valley, raised a field of one hundred acres of Lima Beans. The beans sell at about three and one-half cents per pound, when the common white beans bring two and a half cents, and are said to be no more trouble to cultivate or to market. —*Rural Carolinian.*

FOREIGN INTELLIGENCE.

DIMORPHANTHUS MANDCHURICUS.—First in our note-book stands Dimorphanthus mandchuricus, a fine Araliaceous tree, which may be compared to the Aralia canescens (so commonly known in gardens by the erroneous name of Aralia Japonica), but is even hardier and handsomer. Its erect palm-like habit, and its noble foliage mark it out as a tree exactly suited to stand in some prominent position, where a dark background would throw out in bold relief its fine bipinnate leaves, which are fuller and better furnished than those of the Aralia just referred to, the leaflets being broadly ovate, and more closely set. In this plant the petiole is furnished with short spines, and the rachis with longer ones, which are needle-shaped. From the examples we have seen, it appears to grow freely, and to pass through our winters entirely unscathed, as indeed its native habitat might suggest.—*Gardener's Chronicle.*

LILY OF THE VALLEY (*Convallaria majalis*). —I know no more beautiful and fragrant hardy plant for blooming in-doors or for cut flowers than this. The handsome leaves of tenderest green, and the chaste sweet flowers arching elegantly on their stalks, present a union of charms rarely beheld in one plant—a fact which the flower-loving public appear duly to appreciate. For to say nothing of the estimation in which it is held for button-hole and other bouquets, and other purposes to which it is applied in the cut state, the thousands of pots forced annually in nursery and florist's gardens about towns, to sweeten and enliven sitting-rooms, sufficiently show the admiration bestowed upon it. A very large proportion of this supply is imported annually from Holland. The Dutch have sent us in the few bygone years sufficient to have stocked hundreds of acres to overflowing, but we are no richer in Lily of the Valley for it; imported stock is not even equal to the demand the present season, and the home-grown supply is not plentiful; nor is it so well favored as the foreign.

And what becomes of it all, the thousands of pots of home grown and imported together that find ready customers in winter and spring? In private gardens where much of it is forced, the gardener knows well the value of the old plants, and would as soon think of destroying anything else that is deemed worth keeping as of throwing them on the rubbish heap. A year's nursing and extra good cultivation will put forced Lily of the Valley in condition for forcing again; and no doubt nurserymen and florist's would be glad to get back their old plants from their old customers in such a state as that there would be a reasonable chance of recovering their lost stamina. As it is, however, they never return. They become the property of the police, falling into their hands by the way of the dust-bin and the agency of Polly the housemaid. This is a poor fate for a thing of beauty, that is yet capable of being made beautiful as ever; for the same care and skill that developed its charms before are able to revive them again in due time. —*London Journal of Horticulture.*

UTILITY OF SPARROWS.—It is related by Bechstein, that the inhabitants of Thuringia exerted themselves so successfully in ridding that province of sparrows, that in the course of a year or two they found themselves necessitated to re-introduce them upon a large scale, in consequence of the terrible insect ravages which their crops of various kinds sustained in the interim. The people of New York also, have derived considerable advantage from the introduction of our common British sparrow, which is now fast multiplying in all suitable places about that metropolis. Previously to the naturalization of the sparrow, the New-Yorkers used to be annually annoyed by the multitudes of a certain loathsome caterpillar, which let themselves down from the branches of their avenue and park trees, each one of them hanging by a silken filament, in such myriads that walking underneath those branches became unendurable. Accordingly the sparrow is regarded by our Trans-atlantic cousins as a benefactor, and is rigorously protected. In Australia, as our readers know, sparrows have been largely introduced from this country, although there was no need of coming all this distance for them, inasmuch as any amount of supply might have been obtained either from India or China. It seems that they have multiplied very fast in the Australian colonies, and that already they are there complained of as a nuisance, from the injury which they are alleged to do to the produce of the orchards and vineyards; though we confess to a suspicion that some other feathered depredator is the real culprit in this instance. "Sparrow clubs" have already been suggested at the antipodes, if indeed, they have not been accomplished. In our own country, there is much difference of opinion regarding the utility and the destructiveness of sparrows. That they destroy an incalculable quantity of noxious insects during their breeding season is as certain as that they consume much grain during autumn. But to what extent are we indebted to our small birds for devouring the insects which otherwise might not allow the plant to grow and to produce its seeds, as the good folk of Thuringia seem to have discovered to their cost? Is the balance of profit and loss in favor of the birds or otherwise. Our own decided opinion is, that in this country they do more benefit than injury. Nevertheless, as the smaller birds of prey and the other natural enemies of the sparrows are so ruthlessly shot down, their numbers require to be thinned when the grain is ripening, and when they congregate in the open fields. At that time they are unquestionably injurious; and there is no fear that too many of them could then be destroyed to interfere with the multiplication of their species during spring and summer—the seasons in which it is judicious to protect them. Whoever doubts the latter should try the simple experiment of putting a brood of nestling sparrows into a cage, and hanging it where the parent birds can convey food to them; they will continue to do so at intervals of about a minute throughout the long summer day. Now each pair of sparrows has two, if not three, broods every season, and the quantity of destructive insects which those broods of nestlings consume will utterly astonish the skeptic who doubts the utility of the common house sparrow. —*The Field.*

FLOWERS OF THE ALTAR.—The *Ceremoniale*, moreover, since the time of Clement VIII., tolerates the use of flowers between the candlesticks upon the re-table or super-altar. The usage, however, is neither ancient nor to be commended; and there is no evidence of flowers having been placed during the first thirteen centuries upon the actual mensa of the altar. Accordingly, the practice has no currency, even at the present day, in those cathedrals which

observe the ancient traditions. Saint Walburge forbade any such custom at the altars of the church of her own convent. . . . . It was probably the devotion of enthusiastic women, whose piety accorded rather with the impulsiveness of their sex than with the gravity of the mysteries of the Church, that brought in the custom of placing upon the alter vases of natural and artificial flowers.—"*Church Work*" *for May from the Belgian* "*Beffroi.*"

HORTICULTURAL NOTICES.

PENNSYLVANIA FRUIT-GROWERS' SOCIETY.

The meeting in Philadelphia, January 17th and 18th, was not as well attended as many of the previous years. The "city," of course, is not a place for fruit-growers, and the "country" had a stupid scare about small pox and staid away, forgetful of the fact that in proportion to population there was more of the disease at their own doors. Still the meeting was a very interesting one, and perhaps fully rewarded most of those in attendance. From a distance were Messrs. P. Quinn, A. S. Fuller, Charles Downing, H. T. Williams, of the *Horticulturist*, W. Brown Smith, Willard of Geneva, Sands of Baltimore, Saunders of Washington, and a pretty good sprinkling of the good cultivators of Delaware, New Jersey, and Pennsylvania. Mr. Edwin Satterthwait, for the fruit committee, read an interesting report on the last year's fruit results of the State. The drought interfered with the strawberry crop. Blackberries, "from some cause," were not as productive as usual. Grapes near Philadelphia not very good; but in most parts of the State a great success. Peaches were never better, so abundant indeed as to afford a small margin for profit; and Mr. S. suggested that productive years were not profitable ones to fruit-growers. The yellows he thought the great obstacle to complete success in their culture. The apple crop moderate, and fairly profitable; not 5 per cent. of the consumption of Philadelphia was however raised in the State. The codling moth and the curculio were he believed the only enemies we need care for. The soil was as good as ever. Mr. Jefferis had a very successful orchard. It was on limestone and bears regularly, the surface manured. Manuring was essential to success. Old trees required little pruning. After the trees had grown a little, Mr Jefferis took no crop from the land but the fruit. Long Island Russett and Smith's Cider were among the best varieties in this orchard. Pears do well everywhere in Pennsdlvania. Insects do not trouble them quite so much as other fruits. The early fall of the leaf was the worst trouble. Many of the best pears were Pennsylvania seedlings. The Cherry bore better even than usual, but the curculio got most of them, as also do they the Plum. Their culture in consequence is not popular in the State. The strawberry—had found Jucunda when under high culture the best: then the Agriculturist, next Green Prolific, Lady Finger, and Charles Downing. In raspberries, Philadelphia still maintained its ground; but the over-productiveness of the variety had been in excess of the demand, and raspberries had not been a very profitable crop last year. He spoke in the highest terms of the Herstine. In varieties of apples, Smith's Cider and Fallawater, were named as doing very well; Pears, Bartlett, Seckel, Beurre d'Anjou,—Tyson, and Flemish Beauty, had not done so well. In grapes, the Concord was still the best. Last year the Isabella and Catawba did better than in past years.

A spirited discussion followed, most of the speakers believing in manuring and the destruction of insects as all that was necessary to have full and perfect crops of apples. Wier's trap, it was thought, might be useful. Some members gave their experience in destroying insects by using wide mouth bottles with half molasses, half vinegar. Mr. Schaffer had caught them by the thousand in an incredible short time. Some thought the insects so caught had mostly done the damage by depositing their eggs before being caught, and hay bands, woolen rags, and Wier's trap should therefore go together. Meehan said the apple borer could readily be kept out by tarred paper two inches beneath the ground, and four inches above. Williams said it was no use—a friend of his had the paper eight

inches below the ground, and over a foot above; and it proved just the thing for the borer to protect itself. Meehan said, in this region a tree planted eight inches deep would most likely die anyway, whether the borer touched it or not. The excellent results of wood ashes on fruit trees were testified to by Mr. Fuller.

The committee on a State department of Agriculture reported that they were nearly successful in their efforts with the Legislature last year. They had secured the printing of the Society's Annual Report by the State. They were continued for another year.

The best method of utilizing surlpus fruits in time of great abundance was discussed. Making cider vinegar from surplus apples was warmly commended, and the Alden process for drying fruits generally commended by Alden factories. It was said the machinery was expensive; but in thickly settled districts one could own and dry for the vicinity, as a grist mill now ground flour. The Nyce system, and others of that class had not met with the success anticipated. Oranges and lemons did well, but other fruits seemed to lose their flavor without very nice adjustment of temperature.

The President, Josiah Hoopes, delivered an address in his usual intelligent and able way, which we shall give in full. A discussion then occurred as to the value of any new idea in fruit culture. A letter was read from Mr. Elliott, regarding the intermixture of evergreens in order to mollify the climatic conditions. Most of the speakers contended that our trees were hardy enough when healthy; and though no doubt evergreens gave out heat in winter, perhaps heightening the temperature, it was an open question how much it was heightened, and whether that was really much benefit. Downing, Fuller, Saunders, Parry, Satterthwait, Quinn, and others, all thought improvement must come in the direction of good feeding, and battling with insects. Parry thought that in old times in Pennsylvania local varieties which had been found well, were locally propagated. Railroad and nurserymen sent these thousands of miles away, where they were not so well adapted, and hence some of the trouble came. A very interesting discussion took place on mulching fruit trees. No one seemed to dispute its benefits; but objections were made to its cost. It was thought by most not to pay expenses. Quinn said he could get material from the marshes at low cost. Williams gave an account of a blackberry patch, mulched at an annual expense of only about $10 a year, which brought about $180. Meehan inquired jokingly, what became of the so often insisted on necessity for frequent stirring, if such good results came from soil not stirred at all, which brought out Quinn in a delightful raid on the grass theorists. Fuller thought it would pay to grow sorghum or broom corn for mulching purposes. 10 tons could be grown to the acre.

In a discussion on strawberries, it was contended they were more liable to the larva of the *Lachnostema* in hills than in beds, but this was not confirmed by other speakers. Mr. Fuller gave an interesting sketch of the history of these white grubs, which was received with much interest by the audience.

Mr. Quinn gave a highly interesting address on pear culture. He seconded Parry's distribution theory, only a few varieties would do for any one locality, so many planted large trees. They wanted trees to bear early. This had done much damage to true pear interests. He preferred one year old trees. There were no six varieties which would do equally well everywhere. A neighbor who has grown trees, is the best guide as to varieties. Soil is important to success; stagnant water a great enemy. It should be loose and mellow, 12 to 20 inches deep. Too rich a soil was bad; one fit to grow the best onions not the best to grow pears. A soil which is rich enough to produce fifty bushels of shelled corn to the acre will do for pears. Rich soil prevents thorough maturing of the wood. He commenced seventeen years ago, and had found dwarfs a failure, except Duchesse d'Angouleme. He advocated dwarfs for ten years, but not since. Singular to say, the fruit from standard Duchess was not as good as those from a dwarf. He named Bartlett, Seckel, Duchess, and a few others, as all that did well with him as standards. Belle Lucrative did well in Delaware, but its dull color was against it as a market fruit. Pruning was needed when young to send the sap in desired directions. Some, like B. d'Anjou, B. Clairgau, and B. Diel, did not need it, they grew regular without. He liked to keep the surface continually disturbed; not 10 or 12 inches deep, but only two or three. His experience with grass culture had not been favorable. Over-bearing was a great injury. Thin out when about as large as walnuts. In marketing, never put the best pears on top, but in the middle.

As to making pears pay, it depended on the man. Pears paid as well as any crop, if only a man could be found to make it his business to look after them. One who had business elsewhere, and expected "neglect" to manage the pear business for him, would find it very unprofitable.

At the conclusion of Mr. Quinn's address, Mr. Meehan said that no doubt many would be glad to have more details as to Mr. Quinn's experience in growing pears in grass. Mr. Q. said he had about 6 rows, of about 40 trees in each row, which were sowed down with timothy and red top, after the trees had been about four years on the clean system. The grass was cut three times a year, and suffered to remain where it fell. They were top dressed with the same material given to the other trees. They did not grow or bear as well as the others, so five years ago he put them back into the old system of culture.

Several speakers insisted that the dwarf pear must have very high culture. They had always treated their dwarf pears this way. Dwarf pear culture they believed a failure; they had faith in standards. Satterthwait preferred dwarfs for some reason, and as they would all become standards in time, they were the best to plant. Quinn said that the leaves of the pear kept healthier under the mulching system than under any other.

Mr. A. S. Fuller gave an admirable address on small fruits, and Mr. Meehan spoke on vegetable physiology. The meeting adjourned to meet at Reading, Pa., next year.

WESTERN NEW YORK HORTICULTURAL SOCIETY.

The seventeenth annual meeting of our Western New York Horticultural Society has just closed, after a session of nearly two days. The attendance was large, some fifteen counties being represented by the leading Fruit-growers and Horticulturists.

The Ohio State Horticultural Society was represented by its Secretary, M. B. Bateham, and the Ontario Pomological Society by its President, Rev. Dr. Burnet, and two of its most distinguished members, D. W. Beadle, Esq., of St. Catharines, and William Saunders, Esq., of London.

Valuable communications were received from Marshall P. Wilder, Charles Downing, F. R. Elliott, and others, who were unable to attend.

Reports of much value were received from the various standing committees, and the discussions, although not more than one-fourth of the questions prepared, were spirited, and as it appeared to me, unusually instructive. A report will soon be published. I enclose a list of officers and committees for 1872.

A committee to nominate officers reported the following, who were elected:

President—Patrick Barry, Rochester.

Vice-Presidents—T. C. Maxwell, Geneva; J. La Rue, Hammondsport; George A. Moody, Lockport.

Secretary and Treasurer—Wm. J. Fowler, Rochester.

Executive Committee—H. E. Hooker, Rochester; John J. Thomas, Union Springs; S. S. Graves, Geneva; E. Moody, Lockport; Hugh T. Brooks, Pearl Creek.

Native Fruits—J. J. Thomas, Union Springs; Chas. Downing, Newburg; W. Braddle, Rochester; Geo. S. Conover, Geneva,

Nomenclature—Chas. Downing, Newburg; J. J. Thomas, Union Springs; P. Barry, Rochester; D. W. Beadle, St. Catherines; S. D. Willard, Geneva.

Entomology—H. T. Brooks, Pearl Creek; Dr. Sylvester, Lyons; J. J. Thomas, Union Springs.

Ornamental Trees and Plants—G. Ellwanger, Rochester; E. Frost, Geneva; T. C. Maxwell, Geneva.

Garden Vegetables—E. S. Hayward, Rochester; John Crane, Lockport; J. W. Gray, Albion.

Foreign Fruits—George Ellwanger, Rochester; W. B. Smith, Syracuse; E. A. Bronson, Geneva; E. W. Sylvester, Lyons; C. L. Hoag, Lockport.

Committee to report Quantity of Fruit Shipped from Western New York—C. L. Hoag, Lockport; E. W. Herendeen, Geneva; Dr. Sylvester, Lyons.

A change has been made in the matter of meetings. Heretofore, we have held three, usually, in the year; in future we shall have but one, the annual winter meeting, intended to be a grand re-union of Fruit-growers and Horticulturists, and lasting several days.

The standing committees however, will prosecute their work during the whole season.

We found that our summer and autumn meetings, coming at busy seasons, were attended with much inconvenience to members.

Rochester, January 13th, 1872. B.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XIV. *MARCH, 1872.* *New Series, Vol. V. No. 3.*

HINTS FOR MARCH.

FLOWER GARDEN AND PLEASURE GROUND.

The cultivation of flowers as distinct from mere massing for effect, is becoming far more popular than it has been. It not only gives more pleasure, but it costs less. We saw a statement in an English paper recently, that the mass of geraniums and other bedding plants for masses, ribbons, and so on, raised by one of the famous English gardeners for his own grounds, would, if put into the market at the regular florists' rates, bring $10,000. The massing system has its merits—no place can be made "up to the times" without a little of it. But the cultivation of flowers as such, should not be wholly sacrificed for them.

The seedsmen complain that there are not as many novelties to offer this, as in former years, but there are, at any rate, many which have been introduced in former years which are not yet widely known, and which have had a little testing with us; so that we need not rely wholly on their foreign behavior as we generally have to do with wholly new introductions. Of those which have proved pretty good as annuals are *Aphanostephus ramosissimus*, which has blue flowers something in the way of our greenhouse Cinerarias. Some of our North American Columbines and Delphiniums, although not quite annuals, may be treated as such, and are very beautiful; and of this biennial class, *Armeria splendens* has been found a good thing to have; and we may add to this that beautiful native plant which ought to have been introduced into culture long ago, the pretty orange-flowered *Asclepias tuberosa*. Rather coarse in growth, but still handsome is the *Bidens atrosanguinea*, or Crimson Star Marigold; while for very handsome foliage, and flowers not quite equal to Pampas grass in striking effect, is *Bocconia japonica*. All the *Browallias* do very well in our borders: and the peculiar color of the *Callirhoes* always makes them welcome. *Cannas* all have striking effects by their foliage, and as they are not grown for their flowers so much, it is no objection that they do not generally flower the first year from seed. *Clianthus Dampieri* is, perhaps, the most striking of all the beautiful introductions of the past few years, although some of the improved Chinese Pinks are not far behind. *Eucharidium grandiflorum*, though much like an old Clarkia, has a free habit of growth, and a good, deep rosy color,—and the Godetia, or *Œnothera Whitneyi* of last year, came up pretty well to the idea of a popular favorite. For a pretty white and green variegated plant, the *Euphorbia variegata*, as we saw it last summer on the Western plains, is well worth sowing; and this reminds us also to say a good word for the improved *Gaillardias*, as the original *G. picta* stood the burning sun of the southwestern plains fully equal to anything we saw there. The *Gilias* bloom well and look pretty for a time, but they die out early in the season. *Humea elegans* is a grand thing if it can be sown the year previous to flowering, and the plants kept over. In *Mignonette* the Parsons' White has attracted much attention from its not being white, or much different in color from the old one; but it is certainly of a better habit, and a desirable variety. The new *Pentstemons* sometimes flower the first season; but they do not seem to admire

the hottest places on our grounds. In the Drummond Phloxes, always popular, there are now nearly as many colors as in Verbenas; and the same is true of *Portulaccas*, which, from their only doing well in hot, sunny places, fill a place in our garden work, nothing else will do so well. The Castor Oil Plant—*Ricinus*—has given us so many nice forms of leaves that we can scarcely do without it, though a few years ago, when there was but the one, it was considered too common to grow. There are other things which have done pretty well; but these have proved of almost universal adaptation to our ground.

Having by the aid of these suggestions, our back numbers and the seedsmen's catalogues, got together our set of seeds, suppose we take our friends to the garden and give them a practical lesson in sowing.

The day is warm, and the surface soil just dry enough to powder when struck with the back of the trowel. We should not ask their company otherwise, for when the soil is sticky it won't do to sow seed. The ground has been dry several days before. The surface is now powdered and about the thickness of the trowel blade scraped off. The seed is then sown, the soil drawn back and beat firmly down on the seed. You see how near the top we sowed the seed, and how firmly we beat the soil over it, and we spoke about a "first principle." This principle is this:—Seeds want moisture to make them grow, but they must also have air—one is an evil without the other. If deep they get only water, in which case they rot. If entirely on the surface they get only air, and then they dry up. "But, Mr. Hintsman, why beat the soil so firm?" Another principle, dear lady, lies there. Large spaces in soil enable the earth to dry out rapidly; small spaces, on the other hand, hold water. Crushing earth, *when dry*, gives it these small spaces, or as gardeners call it, makes it *porous*, and thus you see we have set our seeds where they will be near the air, and fixed them so that they shall be regularly moist.

If flowers have been growing in the ground many years, new soil does wonders. Rich manure makes flowers grow, but they do not always flower well with vigorous growth. If new soil cannot be had, a wheel-barrow of manure to about every fifty square feet will be enough. If the garden earth looks gray or yellow, rotten leaves—quite rotten leaves—will improve it If heavy, add sand. If very sandy, add salt—about half a pint to fifty square feet. If very black or rich from previous years' manurings, use a little lime, about a pint, slacked, to fifty square feet.

If the garden be full of hardy perennial flowers, do not dig it, but use a fork, and that not deeply.

Dig garden soil only when the ground is warm and dry. Do not be in a hurry, or you may get behind. When a clot of earth will crush to powder when you tread on it, is time to dig—not before

If perennial plants have stood three years in one place, separate the stools, replacing one-third, and give the balance to your neighbor who has none.

While caring for the flowers, forget not the lawn—that great charm—without which a garden is not worthy of the name.

Our readers all know that the soil should be made as deep as possible, because a deep soil is generally a reservoir of moisture, from which is replaced the waste from the drying surface, under the summer heats, and thus the grass is kept from burning out. But this is not all. Lawns soon become impoverished by exhaustion of the soil, and by continual mowing,—and this has to be provided for. Mowing machines particularly injure lawns, by their very close and continuous cutting. But this must not be an argument against the machines. We cannot do without them. One should be on every lawn of any extent. But we must in some way provide a counter advantage to check the weakening influence which they undoubtedly exert. One of the troubles of close mowing is that the grass is so weakened in vitality that little, low, vile weeds soon advance their forces, and choke out the grass. Allowing the grass to grow up without mowing for a year will give renewed vigor to the grass, and be death to the little pests; but in a year or two the old sod will be as bad as ever, and it is doubtful whether the advantages of the plan compensates for the untidiness. It is, perhaps, better to follow the suggestions of Mr. Sargent and others in our last and previous volumes, to set the machine so as not to cut so low as we did on the first introduction of mowing machines, where it has not been done.

Prune shrubs, roses and vines. Those which flower from young wood, cut in severely to make new growth vigorous. Tea, China, Bourbon and Noisette roses are of this class. What are called annual flowering roses, as Prairie Queen, and so on, require much of last year's wood to make a good show of flowers. Hence, with

these, thin out weak wood, and leave all the stronger.

To make handsome, shapely specimens of shrubs, cut them now into the forms you want, and keep them so, by pulling out all shoots that grow stronger than the other during the summer season.

The rule for pruning at transplanting is to cut in proportion to apparent injury to roots. If not much worse for removal, cut but little of the top away. Properly pruned, a good gardener will not have the worst case of a badly dug tree to die under his hands. In nursery, where these matters are well understood, trees "never die."

Box edgings lay well now. Make the ground firm and level; plant deep, with tops not more than two inches above ground.

Roll the grass well before the softness of a thaw goes away. It makes all smooth and level.

Graft trees or shrubs where changed sorts are desirable. Any lady can graft. Cleft grafting is the easiest. Split the stock, cut the scion like a wedge, insert in the split, so that the bark of the stock and scion meets; tie a little bast bark around it, and cover with Trowbridge's Grafting Wax, and all is done; very simple when it is understood, and not hard to understand.

Hyacinths, Tulips, Liliums, and other hardy bulbs set out in the fall, and covered through the winter, should be occasionally examined, and when they show signs of active growth, must be uncovered; in this latitude this is not safe until towards the end of the month.

The improvements that the last few years have made in the Hollyhocks have rendered them very popular for ornamenting shrubbery borders, to which they add very great interest, and are peculiarly appropriate. They may be transplanted quite early in the season, and flower the more freely for it. They are propagated by dividing the roots in the spring, or by seeds sown as soon as ripe in the summer. The choice kinds are increased by eyes made by cutting up the flower stems. These are struck in a gentle bottom heat.

And now, having taken a look at our flower-beds, and lawns, and trees, and shrubs, do not forget the walks and roads, which, however well kept the other parts of a garden may be, are often neglected. Nothing is so disgusting to a tasteful mind as a slovenly path.

Walks and roads are not used as much to add mere embellishment as in Europe. They are costly to make and keep in order. In American gardening they are only employed where absolutely necessary, and then turned and twisted as little as may beautify, without losing sight of their necessary duties. Old tan bark makes a cool and delightful walk under the shade of trees. It must be laid on a dry bottom, or it becomes very unpleasant in wet weather. Slag from furnaces, ground up with ashes, is the very best material for garden walks, and the color is far more agreeable in hot weather than gravel. Notwithstanding its dark color, it is not so hot, and it does not pack quite so hard as the regular road material. Sand, on the other hand, though it does not pack at all, is very hot, on account of the very hard nature of its particles.

FRUIT GARDEN.

Whatever may be said of birds and their evils when the fruit is ripe, there can be but one opinion about their value *now*. They have nothing but insects to live on, and they eat them by the millions. Insects are a far greater scourge to the fruit grower than birds,—it will be wise to encourage them. We see the English sparrow is getting naturalized in various parts of the country. We expect to hear in time great complaints from its graminivorous propensities; but this can be better guarded against than the attacks of insects.

It seems as if we are again to have plums and cherries, for the plum knot is readily kept down now that its true nature is understood. The curculio is now the only formidable enemy left, and he falls back before "eternal vigilance." Our markets were loaded with plums last year. Somebody grows them.

In planting fruit trees, aim to have them so that the hot, dry sun will not have full effect on the ground about the roots. The great heat in this way injures the trees. Many who have trees in gardens, plant raspberries under them. The partial shade seems to be good for the raspberries, and helps the trees. Blackberries would, no doubt, do well in the same situation; and strawberries, it is well known, do not do badly, grown in the same way.

It has been noted that the grape vine thrives amazingly when it gets into an asparagus bed. These are generally elevated, and are thus dry, —while the rich soil necessary for asparagus is also good for grapes.

The gooseberry and currant also do well in

partial shade. In fact, if you would have the gooseberry and currant in great perfection, get a lot of old brush-wood and cover the rows closely, so that the plants will have to push through, and you will be astonished at the growth and healthfulness of the bushes. The decaying wood also furnishes an excellent manure for them. The finest currants ever grown can be had by mulching with old chestnut burrs, or even sawdust.

In fruit-growing, remember that fruits are like grain and vegetable crops, in this, that they must have manure to keep up fertility. Unlike vegetables and grain, however, their feeding roots are mostly at the surface. It is best, therefore, annually to top-dress fruit trees. If manure cannot be had, any fresh earth from ditches or road-sides, spread a half an inch or so under the trees, will have a wonderful effect. Indeed, we do not know but that for the pear tree a thin layer of road sand is one of the best manures. We have seen apples thrive amazingly with a coating of coal-ashes.

Whitewashing the stems of orchard trees has a very beneficial effect in clearing away old bark and destroying the eggs of innumerable insects, The white color is bad; throw in a little soot or some other matter to make it brown. In greenhouses, sulphur has been found of benefit in keeping down mildew. Possibly, if mixed with the whitewash in tree-dressing, it might do good against fire-blight, and such like fungoid troubles.

VEGETABLE GARDEN.

This is a busy season south of Pennsylvania in this department; here we must wait till the end of the month, and northward still later. The crops noted will, of course, be dependent on the arrival of the *season*, which is rather indicated by the ground becoming warm and dry, than by the almanac. It is very important to have crops early; as soon as the ground is, therefore, in good condition put in the seed. Possibly a cold rain might come and injure them, and you may lose, and have to make a new sowing. Even so, it is but the loss of the seed and labor, while, if the seed do *not* die, the early crop will more than repay that risk.

It is best not to sow tender vegetables too soon; they get checked, and the last will be first. Asparagus is one of the earliest crops to set out. It was at one time believed that the varieties of this would not come true from seed, and that there was but one best kind. We are not so sure of this now. Many plant them too deep and fail; four inches is enough, rows 20 inches, and plants one foot apart will do. Make the soil particularly rich.

Where new Asparagus beds are to be made, now is the time; the ground should be rather moist than dry, and be trenched about two feet deep, mixing in with it a good quantity of stable dung, and, if the ground be inclining to sand, add some salt; the beds should be marked out four feet wide, and the alleys about two feet. If pegs are driven down at the corners of the beds permanently, they will assist operations in future years. Having marked the positions of the beds and procured a stock of two year old plants, place them on the soil nine inches apart in rows, one foot asunder, making three rows in each bed; then cover the whole with soil from the alleys and rich compost a couple of inches.

To have Turnips good in spring they must be sown very early; they are hardy, and must be put in as soon as the ground can be caught right.

Salsify, too, must be in as soon as possible—it prefers a strong, rich loam.

Those who have no Spinach sown in the fall, should do that right away; no amount of stable manure but will be a benefit to it, though guano, in even small doses, will kill it; guano produces excellent Cabbage, mixed with the ground while it is being dug for that crop. Cabbage, by the way, may be put in as soon as the ground is ready; and Potatoes are better in before the beginning of next month, if the ground is not too wet; many plant Cabbage between the Potato rows.

Deep, rich soil, now so generally condemned for fruit gardens, is of the first importance here. Soil cannot be too rich or too deep, if we would have good vegetables. It is, inded, remarkable, that in many respects we have to go very differently to work to get good fruits than we have to perfect vegetables. While, for instance, we have to get sunlight to give the best richness to our fruits, our vegetables are usually best when blanched or kept from the light. So, also, as we keep the roots as near the surface as we can in order to favor the woody tissue in trees, we like to let them go deep in vegetables, because this favors succulence.

To have Broccoli it has to be sown very early,

or it will not head. The purple Cape and white Walcheren are the most popular varieties. In Cabbages there have been many new varieties the few past years. It is hard to decide on the best. The Early Dwarf York is still largely planted for a first crop, and the large Early York planted for a second coming in. The Early Wakefield is, however, very popular in some districts. The Winningstadt is approved as a summer sort, and its tender quality is appreciated. For late crops the Marblehead varieties have justly earned a good reputation, although the Large Late Drumhead, and Flat Dutch are still largely planted. The Savoys and Red Dutch are also sown now. For protection against the Cabbage-fly we find nothing so good as water slightly impregnated with coal oil, and syringed over the seed beds.

Celery for the main crop will do about the end of the month, but a little may be sown now. We have never been able to make up our mind whether there is such a thing as an absolute *solid* variety of Celery; and whether pithiness in any degree depends on soil or culture. Certainly we buy all the most improved "solids" every year, and never yet found one satisfactory throughout. We cannot say which is the best of the many candidates.

In the hotbed, pepper, egg-plant, tomato and cucumbers may be sown,—and in a cooler hotbed frame, Early York cabbage, cauliflowers and celery. Those who have not got a hotbed, can sow a few pots or boxes, and keep them near the light in a warm room.

In addition to sowing of the above, onions, leeks, parsnips and parsley must be sown at this season—not for the main crop, but to have a few in advance of the rest. To keep over the winter, almost all kinds of root crops become tough or coarse if sown too soon.

In the open ground, peas and potatoes receive the first attention. Then beets and carrots. Then lettuce, radish, spinach, onions, leeks and parsley. Beyond this, unless in more favored latitudes than Pennsylvania, little can be done until the first week in April. There is nothing gained in working soil until it has become warm and dry.

GREENHOUSE PLANTS, &c.

Dahlias should now be brought forward. A good plan is to shorten the extremity of the roots, put them in six-inch pots and place in a warm greenhouse. In a few weeks they will sprout, when they should be shaken out, divided with a piece of root to each sprout, and separately potted in four-inch pots.

Camellias will require rather more water while growing than at other times. Just before they grow is a good season to graft. Cut down the stock, cleft graft in the crown, wax and plunge in a bottom heat of 70°. A great many kinds may be had on one plant by the bottle system, practiced by the writer's father, thirty years ago. A shoot about to grow is obtained and attached to the stock as an inarching, the end of the shoot being put in a small phial of water suspended beneath it. This plan does best, however, with the young wood in July.

Azaleas succeed well by grafting with the half ripe shoots of the present season's growth on plants raised either by seeds or cuttings. Old wood does not take readily.

Chrysanthemums should now be raised from cuttings for fall flowering. They make better blooming plants than off-sets.

Fuchsias may now be readily struck from the young growth from the old plants, which will make excellent blooming plants for the next summer season.

Geraniums, Pelargoniums, Cinerarias, and Chinese Primroses must be kept as near the glass and light as possible; they do little good in shady places. Keep off the green Aphis—for, this on a small scale, there is nothing like hot water; on a large scale, tobacco-smoke in several successive light doses is still the best remedy.

Auriculas, Carnations, Pinks and Polyanthus —the prettiest of florists' flowers—must be kept cool, just free from frost, with plenty of air, if the best results are desired.

New Holland and Cape plants, such as Apacris, Acacia, Heaths, etc., are now the glory of the greenhouse; hot bursts of sun on them should be avoided, as it lays in them the seeds of "consumption," which frequently carries them off the following summer.

Look out for a good stock of bedding plants in time, by striking cuttings of such things as grow rapidly and speedily, and sowing seeds of such annuals as may be advanced to advantage.

Pansies are coming now into flower. They like an airy frame, where they will not be roasted at midday nor exposed to drying winds, and yet have a free circulation of air and plenty

of light. Planted out in such a frame, and the old shoots cut away as soon as the plant has done flowering, the plants will keep healthy over till the next season.

Superior varieties can be raised from seed. Choose those with the roundest petals, best colors, and the first flowers that open, to raise seed from.

COMMUNICATIONS.

VEGETABLE AND ANIMAL LIFE.

BY MR. JACOB STAUFFER, LANCASTER, PA.

What though we may be unable to explain what life is, it may still be proper to examine into what is termed the physical basis of life. It is well to bear in mind, however, that notwithstanding much has been written on these subjects, the knowledge of hidden forces, motion or life, soul and spirit, is no better elucidated now than it was centuries ago. So that we can with propriety, adopt the scripture language, found in Hebrew xi. 3.—"Through faith we understand that the worlds were framed by the word of God, so that things which *are seen* were *not made* of *things* which do *appear*." This is the positive fact, and science can not in truth gainsay it.

Interested as we all are in the properties of matter, the more we investigate the more is the goodness and wisdom of God displayed in the wonders of creation. We may consider a plant as an organized being, which takes up its food by roots from the soil, and by leaves from the air, in a general sense; while animals are organized beings, which select their food from vegetables growing on the surface of the soil, either directly or indirectly; that is, the carniverous feed upon each other or the graminiverous. Huxley says the same thing,—"that the vegetable world builds up all the *protoplasm* which keeps the animal world agoing. Plants are the accumulators of the power which animals distribute and disperse." But I do not believe that what he terms the "matter of life," as life depends upon "carbonic acid, water and ammonia." It may be true that we may not be able to see its manifestations by our physical senses, separate and apart or disjointed from those elementary principles. We can conceive that mind and consciousness can exist, and yet the physical organism be so paralyzed that, to our senses, a person may be consigned to the grave as a dead man, who, nevertheless, may be conscious of what is going on, and yet unable to give any sign of life. The vitality of a seed may be dormant for years. The truth is, "life, as life," to my mind, is an emission from God, as a power, whether we associate it with light or surroundings upon which it can act, and project itself into the material organization of matter by fixed or fundamental laws; also as much the work of the Creator, for in wisdom are they founded; and our sciences relate only to so much of the operation of these laws as are brought to the surface or made tangible, the underlying, imponderable, operating element is still remote from our knowledge and hidden from our view.

Let us briefly consider what science knows of the so-called essential elements of life. Carbon, hydrogen, oxygen, and nitrogen?

Carbon—a pure combustible base of the varieties of charcoal and other carbonaceous matter,—charcoal is burned wood or burned bone or leather, both previously organized, whether from the vegetable or animal creation. What is very remarkable, however, is that the diamond, being a mineral, is pure carbon in crystalized form. As an elementary substance, carbon combines with oxygen in two proportions, forming carbonic acid, and carbonic oxide. Carbonic acid consists of 6 carbon x 16 oxygen =22. This extinguishes flame and suffocates animals; as found in wells and mines, it is called *choke damp*; limestone, marble and chalk contain it. Carbonic oxide is composed of 6 carbon x 8 oxygen=14. It is fatal to animals, and extinguishes flame; but it burns in contact with air, and forms carbonic acid.

We will now briefly consider Oxygen, so efficient in forming *acid compounds*, as well as eight-ninths of the weight of water, one-fifth of the weight of the atmosphere, and is present (often to the amount of from forty to fifty per cent.) in nearly all the mineral bodies of which the crust of the globe is composed, including the soil.

The magnetic properties of the atmosphere

are said to be almost exclusively due to the oxygen contained in it, modified by its action by solar heat, it occupies a high position among electro negative bodies. It is just as likely that electricity is associated with the oxygen in the air, which, for instance, when brought under the rubber of an electric machine, separates it by the oxygen acting upon the amalgam, and liberates the electricity, which, having a greater affinity for the metalic conductors than for the air, is conveyed to the "Leyden Jar" and confined until discharged. Electricity is only a modification of creative force, and is more nearly related to life than the ponderable elements upon which it acts through the influence of solar light or otherwise. Though the sun's rays are not fire, yet bring them to a focus, by a lens, and fire is a result in contact with combustible bodies.

Hydrogen is only known in its gaseous form, formerly called inflammable air, and considered identical with the *matter of heat*. Pure hydrogen is sixteen times lighter than oxygen; it burns in contact with air with a pale flame, and when mixed with three or four times its volume of air (or half its volume in pure oxygen) and inflamed, it burns rapidly, and in the latter case with violent explosion. The only product of this combustion is water. How marvelous; and yet hydrogen is not absorbed by water, and animals soon die when confined in it So we come to consider water, which was itself considered an element by the older chemists, but we have just seen that it is a compound of hydrogen and oxygen, as supposed by Watt and Cavendish, as far back as A. D. 1786 and 1787, and since satisfactorily demonstrated. Thus water is in fact an *oxide of hydrogen*, scientifically considered. But water is seldom purely such; there are mechanical, gaseous, mineral and organic impurities in it, even changing in its descent as pure rain-water, becoming charged with the gases of the atmosphere, such as oxygen, nitrogen and carbonic acid, and during a thunder storm an appreciable quantity of nitrate of ammonia produced by electric discharges through moist air, and is a source of fertility to vegetation, further augmented by its holding in solution small quantities of mineral salts, and generally of organic matter.

We will not stop to consider the several kinds of impurities, nor their special agencies in the grand natural laboratory, and its vast importance to vegetable and animal life, as a "physical basis,"—but we may glance at a few of its characteristics. At the temperature of 32° it ordinarily crystalizes into ice, which is slowly produced in geometrical prisms crossing each other at angles of 60° and 120°; perhaps primitively in a rhomboidal figure, the acicular prisms in flakes of snow remarkably variable are beautifully arranged. Ice, though a non conductor of electricity, becomes electric by friction. Water expands in freezing with irresistible force, so as to burst iron or leaden pipes. If two pieces of melting ice be placed together in a warm room, the film of water between them soon freezes and cements the two masses together; and this effect also takes place between the surface in warm water. Hence broken masses of ice become again a solid mass, as seen in ice cascades of a glacier, after the watery cascade is past. By the application of heat to ice or water, it is converted into an elastic fluid or gaseous form called steam, in which the particles have a mutual repulsion and causes the force it exerts by the pressure uniformly diffused over the surface of the vessel in which it is confined; it is this to which the mechanical power of steam is due. As I am not writing on steam, but rather the properties of heat and water, I may be excused for not following it up further.

The remaining element to be considered is *nitrogen*, also a simple gaseous body forming a constituent of the atmosphere and of nitric acid, this being also antagonistic to life, is hence also called *azote*. It is, nevertheless, an important component of many organic substances, and is remarkable as one of the fulminating compounds of gold, silver and mercury, to say nothing of gun powder, (a compound of sulphur, nitre and carbon.) Thus we learn that these elements are mostly deleterious to life, and yet essential to support it.

Having now taken a review of Mr. Huxley's physical basis of life, whether vegetable or animal, let us see what physiology teaches, which is, that products that do not contain *nitrogen*, and consist of carbon, hydrogen and oxygen are chiefly concerned in maintaining animal heat, by a species of slow combustion terminating in the production of *carbonic acid* and *water*, which are thrown off by the lungs, and are, therefore, called elements of *respiration;* and those which *do* contain *nitrogen*, and which consist also of carbon, hydrogen, oxygen, with sulphur and phosphorous, are employed in the formation of the principal organs of the body, and therefore

termed *plastic elements* of *nutrition*. The former include starch, gum, sugar and fat; the latter are the nitrogeniferous products of vegetation, such as gluten, legumine and albumen, and the flesh and blood of animals.

Thus we learn that vegetables *produce* azotized substances, the fatty matter, starch, gum and sugar, which are *consumed* and form the food of animals, and from this consumption is *produced carbonic acid*, *water* and *ammonia*, which latter product is, in turn, *decomposed* by vegetation, and in that decomposition *oxygen* is *evolved*, so essential to the *animal*, in return for the *carbonic acid* product given out by the animal, and so essential to vegetation. Oh, the wisdom and goodness of God! Who is so blind that he cannot see the perfection of design and wonderful knowledge displayed in the works of creation?

ELIGIBLE TIMBER TREES.

BY FERD. VON MUELLER, MELBOURNE AUS.

(*Continued.*)

PINUS MONOPHYLLA, Torr. and Frem.
Stone or Nut Pine of California, on the Sierra Nevada and Cascade Mountains, 6,500 feet. The seeds are edible, of an almond-like taste, and consumed in quantity by the natives. Height of tree only 35 feet; thickness of stem 8 to 10 inches. (16)

PINUS MONTANA, Du Roi. *P. pumilio Hœnke.*)
On the Alps and Carpathians up to the highest points, covering large tracts, and thriving on the poorest soil. The tree, which grows about 25 feet high, in favorable localities 50, yields much oil of turpentine. The wood is used for carving and for firewood. Only available to advantage for our highlands.

PINUS MONTEZUMAE, Lamb. (*P. Devoniana*, Lindl.) *P. Grenvillea*, Gord.)
Mexico. A handsome Pine, 80 feet high; wood white, soft and resinous.

PINUS MONTICOLA, Dougl.
California, at an elevation of 7,000 feet. It thrives best in poor soil of granite formation, and attains the height of 200 feet, with a stem of 1½ to 4 feet thick. The wood is white, close-grained.

PINUS MURICATA, Don.
Bishop's Pine. California. Found up 7,500 feet. This pine grows to about 40 feet.

PINUS NIGRA, Ait.
Black Spruce. North East America. Occurring extensively between 44° and 53° N. latitude. This tree, which is termed Double Spruce by the Canadians, attains a height 70 feet, and furnishes a light elastic timber of white color, excellent for yards of ships. The young shoots are used for making spruce-beer, and the small roots serve as cords. It likes swampy forest land.

PINUS NOBILIS, Dougl.
Noble White Fir. Northwest coast America, on the Columbia River and the mountains of North California, where it forms extensive forests at 6 to 8.000 feet. A majestic tree, 150 to 200 feet high, with regular horizontal branches. It furnishes a valuable timber for building.

PINUS ORIENTALIS, L.
Sapindus Fir. In Asia Minor, at 4,000 ft. The tree rises to about 80 feet, and resembles somewhat the Norway Spruce. The wood is exceedingly tough and durable.

PINUS PARVIFLORA, Sieb.
In Japan. It only gets about 25 feet high; but is much used as an avenue tree; wood for fine furniture and boat-building.

PINUS PATTONIANA, Parl.
California; 5 to 6,000 feet above sea-level. A very fine fir, 300 feet high, with a perfectly straight stem. The wood is hard, of a reddish color, with handsome veins; but poor in resin.

PINUS PATULA, Scheide and Deppe.
In Mexico; at an elevation of 8 to 9,000 ft. A graceful pine, 80 feet high.

PINUS PENDULA, Soland. (*P. microcarpa*, Lamb)
Small-coned American Larch; Black Larch or Tamarack. Frequent in Vermont and New Hampshire. A pine of pyramidal growth, 100 feet high. The timber is white, heavy, resinous, and as highly valued as that of the Common Larch.

PINUS PICEA, Du Roi.* (*P. Abies*, L.)
Norway Spruce, Fichte. Middle and Northern Europe and Northern Asia; rising from the plains to an elevation of 4,500 feet, and forming extensive forests. The tree attains a height of 150 feet, or even more, and furnishes an excellent timber for building and

[16] This, in the form of *P. edulis*, is found in the vicinity of Pike's Peak, and is highly prised as fire wood. The aspect of this pine from a distance, is like a well grown Siberian Arborvitæ.

furniture; commonly known under the name of White Deal. It also produces the Burgundy Pitch in quantity, while the bark is used for tanning. Though enduring our dry summers, this spruce would have to be restricted for timber purposes to the damp mountains.

PINUS PINASTER, Soland.*

Cluster Pine. On the shores of the Mediterranean. The tree is of quick growth and rises to 60 feet in height; the wood is soft and resinous; it yields largely the French turpentine. Among the best pines for consolidation of sandy coast land, and converting rolling sands into pasture and agricultural land. For ease of rearing and rapidity of growth, one of the most important of all pines.

PINUS PINCEANA, Gord.

Mexico, up to 8000 feet above sea level. A very remarkable pine, having drooping branches like the Weeping Willow; 60 feet high. Most desirable for cemeteries.

PINUS PINDROW, Royle.

In great abundance on the spurs of the Himalaya mountains, 8 to 12,000 feet above the sea level. A fine straight stemmed tree, 100 feet high. (17)

PINUS PINEA, L.*

Stone Pine. Frequent in the countries bordering on the Mediterranean; height of tree 60 feet; the wood is whitish, light, but full of resin, much used for buildings, furniture and ships. The seeds are edible, somewhat resembling almonds, but of a taste resinous though not disagreeable; they only ripen in their third year. This pine grows as easily and almost as quickly as the Cluster Pine.

PINUS PINSAPO, Boiss.

Spanish Fir. In Spain, on the Sierra Nevada, 4 to 6000 feet. A tree of 60 feet high, with branches from the ground.

PINUS PONDEROSA, Dougl.* (*P. Benthamiana*, Hartw.)

Yellow or Pitch Pine of the mountains of N. W. America. Height of tree up to 225 feet, with a stem of 24 feet in circumference, of comparatively quick growth; the wood is heavy, and for general purposes preferred to that of any other pine. Has proved well adapted even for dry localities in Victoria.

[17] This beautiful fir is quite hardy in Philadelphia, provided it is well sheltered till it forms its tap root.

PINUS PSEUDO-STROBUS, Lindl.*

In Mexico. This tree is superior in appearance to any other Mexican pine; height 80 feet

PINUS PYRENAICA, Lapeyr.

In the South of Spain and on the Pyrennees. A fine ornamental tree of quick growth, 80 feet high; the wood is white and dry, poor in resin.

PINUS RADIATA, Don.* (*P. insignis*, Dougl.)

California. A splendid pine, fully 100 feet high, with a straight stem 2 to 4 feet in diameter. It is of remarkably rapid growth, a seedling, one year old, being strong enough for final transplantation; the wood is tough, and much sought for boat-building and various utensils

PINUS RELIGIOSA, Humb.

Oyamel Fir. Mexico, 4 to 9000 feet above the sea level. A magnificent tree with silvery leaves, growing 100 feet high; stem 6 feet in diameter; the wood is particularly well fit for shingles.

PINUS RESINOSA, Soland.

Red Pine N. America, principally in Canada and Nova Scotia. It gets 80 feet high and 2 feet in diameter; the wood is red, fine-grained, heavy and durable, not very resinous, and is used for ship-building.

PINUS RIGIDA, Mill.*

American Pitch Pine. From New England to Virginia. It grows to a height of 80 ft.; the timber, when from good soil, is hard and resinous and used for building; but the tree is principally important for its yield of turpentine, resin, pitch and tar.

PINUS RUBRA, Lamb.

Hudson's Pine, Red Spruce. Nova Scotia, Newfoundland and other northern parts of the American Continent. A straight slender tree, 70 feet high; the wood is of a reddish color and highly esteemed.

PINUS SABINIANA, Dougl.*

Californian Nut Pine or White Pine. Most frequent on the western slopes of the Rocky Mountains, intermixed with other trees; 150 feet high; stem 3 to 5 feet in diameter; the wood is white and soft; the clustered heavy cones attain a length of 1 foot; the seeds are edible. Proves in dry localities of Victoria to be of quick growth.

PINUS SEROTINA, Michx.

Pond Pine. Southern States of North America, in black morassy soil, principally

near the sea coast; it is 50 feet high, stem 18 inches in diameter; the wood is soft.

PINUS SYLVESTRIS, L.*

Scotch Fir, Foehre. Middle and Northern Europe, up to 70° N Lat., and North Asia, thriving best in sandy soil. A very valuable tree, fully 100 feet high, growing to the age of about 120 years. The Red Baltic, Norway, or Riga deals are obtained from this pine, as well as a large portion of the European pine tar. Proves well adapted even for the dryer parts of Victoria.

PINUS SIBIRICA, Turcz. (*P. pichta*, Fisch.)

Siberian Pitch Fir. On the Altai Mountains; it reaches a height of 50 feet.

PINUS STROBUS, L.*

Weymouth Pine or American White Pine. N. E America, growing on any soil, but preferring swampy ground; it is found 160 feet high, with a stem of 4 to 6 feet in diameter; the wood is soft, white, light, free of knots, almost without resin, easy to work, and much esteemed for masts; it yields American turpentine and gallipot. (18)

PINUS TÆDA, L.

Frankincense or Loblolly Pine. Florida and Virginia, in sandy soil, attaining a height of 80 feet; the timber is esteemed for ship-building. It also yields turpentine in good quantity, though of inferior quality.

PINUS TENUIFOLIA, Benth.

Mexico, at an elevation of 5000 feet, forming dense forests; height of tree 100 feet, stem up to 5 feet in diameter.

PINUS TEOCOTE, Cham. and Schlecht.

Okote or Torch Pine. Mexico, 5 to 8000 feet above the sea level. Tree 100 feet high, stem 3 to 4 feet in diameter; the wood is resinous and durable.

PINUS TSUGA, Ant.

In the northern provinces of Japan, 6 to 9000 feet above the sea. The tree gets only 25 feet high; its timber is highly esteemed for superior furniture, especially by turners.

PINUS WEBBIANA, Wallich.*

King Pine, Dye Pine. On the Himalaya Mountains, at an elevation of 12 to 13,000 feet. A splendid fir 70 to 80 feet high, with a stem diameter of generally 3 to 4 feet, but sometimes even 10 feet. The wood is of a white color, soft, cross-grained and very resinous; the natives extract a splendid violet dye from the cones.

SCIADOPITYS VERTICILLATA, Sieb.

The lofty and curious Umbrella Fir of Japan, 140 feet high; resists severe frosts; wood is white and compact. (19)

SEQUOIA SEMPERVIRENS, Endl.* (*Taxodium sempervirens*, Lamb)

Red Wood or Bastard Cedar of N. W. America, chiefly California. A splendid tree, 300 feet high, occasionally with a diameter of the stem of 55 feet The wood is reddish, close-veined, but light and brittle. One of the most colossal trees of the globe.

SEQUOIA WELLINGTONIA. (*Wellingtonia gigantea*, Lindl.)

Mammoth Tree. California, up to 5000 ft. above the sea. This, the biggest of all trees, attains a stem of 320 feet in length and 112 feet in circumference, the oldest trees being estimated at 1100 years; the total height of a tree will occasionally be 450 feet; a stem broken at 300 feet had yet a diameter of 18 feet. The wood is soft and white when felled, afterward it turns red.

TAXODIUM DISTICHUM, Rich.*

Virginian Swamp or Bald Cypress. In swampy places of North America. A large and valuable tree, 100 feet high, with a stem circumference of sometimes 40 feet, of rapid growth, with deciduous foliage like that of the Larch and Ginkgo; it is found fossil in miocene formation of many parts of Europe. The wood is fine-grained, hard and durable; it yields an essential oil and a superior kind of turpentine. Useful for avenues on swampy margins of lakes or river banks.

TAXODIUM MUCRONATUM, Ten.

The famed Montezuma Cypress of Mexico, 120 feet high, with a trunk 44 feet in circumference; it forms extensive forests between Chapultepec and Tescuco.

TAXUS BACCATA, L.

Yew. Middle and South Europe and Asia, at 1000 to 4000 feet elevation. Generally a shrub, sometimes a tree 40 feet high, which furnishes a yellow or brown wood, exceedingly tough, elastic and durable, and much esteemed by turners. The tree is of very slow growth, and reaches a great age, perhaps several thousand years; some ancient

[18] It is a mistake that this tree *prefers* swamps. It should read the reverse, say "it prefers deep rich soil in mountain valleys, but will grow on swampy ground."

[19] Found to be very hardy in Philadelphia. Even young plants, exposed, do well.

ones are known with a stem of fifty feet in girth.

TAXUS BREVIFOLIA, Nuttall. (*T. Lindleyana, Laws.*)

N. W. America. Western Yew. A stately tree, 75 feet high, with a stem of 5 feet in circumference. The Indians use the wood for their bows.

THUYA GIGANTEA, Nutt.

N. W. America on the banks of the Columbia River. The Yellow Cypress of the colonists. A straight, graceful tree, 200 feet high, furnishing a valuable building timber of a pale or light yellow color. (20)

THUYA OCCIDENTALIS, L.

N America, particularly frequent in Canada. A fine tree, 70 feet high; the wood is reddish or yellowish, fine grained, very tough and resinous, and well fit for building, especially for water work. The shoots and also an essential oil of this tree are used in medicine; the bast can be converted into ropes

THUYOPSIS DOLABRATA, Sieb and Zucc.

Japan. A majestic tree, furnishing an excellent hard timber of a red color.

TORREYA CALIFORNICA, Torr. (*T. myristica*, Hooker)

In California. Tree 80 feet high.

TORREYA GRANDIS, Fortune.

China. A tree 60 feet high, with an umbrella-shaped crown; it produces good timber.

TORREYA NUCIFERA, S. and Z (*Caryotaxus nucifera*, Zucc.)

Japan. Height of tree about 30 feet. From the nuts the Japanese press an oil, used as an article of food.

TORREYA TAXIFOLIA, Arott.

Florida. A tree 50 feet in height, with a firm, close-grained, durable wood of a reddish color.

WIDDRINGTONIA JUNIPEROIDES, Endl.

South Africa, 3000 to 4000 feet above sea level. A middling sized tree, rich in resin.

ORCHIDS—NO. 2.

BY MR JAMES TAPLIN, MANAGER TO MR. GEO SUCH, SOUTH AMBOY, N. J.

Cypripedium insigne. This is one of the people's orchids; it is cheap, very easy to grow, and very free blooming; it will grow and flower well either in a hot or cold house, and may be placed in the open air from June to September. If grown in a hot-house, it will flower in October, and if kept cool and shaded, the flower will last in perfection for two months; if grown in a cool house, it will flower about Christmas, so that it may be had flowering in succession for four or five months. The Cypripedium having no pseudo bulbs, must never be allowed to get very dry at any time, but when their growth is finished do not give quite so much water as in the growing season, which, with this variety, is from March until September.

The best soil to grow this variety, is half rough peat and half rough loam, with a little thorough dry decayed manure, and a good addition of sand; fill the pots one third full of broken pots, make the soil firm round the plants, and fill pots level full of soil. The best time to repot, if necessary, is just before plants commence to grow, but the plants will do well for several years without potting, by top-dressing the plants in the spring with the same sort of soil. Nice plants with four or five flowers, may be grown in six inch pots, or larger specimens with from twenty to thirty blooms each in large deep frames.

We have over two hundred flowers on a batch of plants occupying less than twenty-four square feet, the flowers being five and a half inches across.

There are two varieties of this Lady's Slipper plant, the one known in England as Maule's variety, has more white in the top or dorsal sepal; the flower is larger and the marking is brighter than in the more common variety. This is the variety we grow.

I may add, the plant will do very well, and last a long time in flower in a moderate warm sitting room, and the cut flowers will also keep fresh a long time in water.

ADDRESS OF PRESIDENT HOOPES.

Delivered before the Pennsylvania Fruit Growers' Society, in Philadelphia, January 17th, 1872.

(*Concluded.*)

Another valuable ingredient found in the cells of plants is *gum*, a translucent substance bearing an important part in the substance of vegetation, and may, with entire propriety, be termed plant food. Although not soluble in Alcohol or Ether, it becomes readily so in water

[20] The Yellow Cypress or Cedar of the Northwest, in *Cupressus Nutkaensis*; or as it is mostly called in gardens *Thujopsis borealis*.

as well as in diluted acids, hence its value in the economy of plant life. In our fruit-bearing trees it exudes as a gummy secretion from the surface of the bark, as, for instance, in the Cherry, Peach and Plum, and this particular form is termed *Cerasine*, whilst a similar substance taken from the Acacia is termed *Arabine* or Gum Arabic. Similar substances, although somewhat chemically distinct, are found in very many of our well-known plants.

Saccharine matter in the form of crystals of sugar, or else in an uncrystalized form is also found in many plants. In the juice of fruits we notice its presence, when it is called *Grape sugar*, with a formula consisting of equal parts of Carbon, Hydrogen and Oxygen. Sugar procured from the sugar cane, the Sugar Beet and the Sugar Maple is also an example of this valuable constituent. Starch, as I stated in my remarks upon that subject, is found in the seeds of many fruits, but during the process of germination it undergoes a chemical transformation, and is converted into sugar, which supplies abundant nourishment to the young plantlet. In the skin of some fruits there are organs of secretion in which oils are found; the rind of the Orange, Lemon and Olive is an examples of this character, in which the volatile oil is contained in cavities surrounded by cellular tissue. In other plants we notice the secretions of turpentine, &c., as in the bark of the Coniferæ; and oily vessels in the seeds of various plants, especially those belonging to the natural order *Umbeliferæ*. In addition to the various substances found in the cells of plants, there are acids and inorganic matter of a mineral form. Beautiful crystals of the phosphate, as well as the sulphate and carbonate of lime, may be observed in many plants after a careful dissection and under the lens of a high power of the microscope.

STRUCTURE OF THE LEAF.

We now arrive with our investigations at the leaf, which may be considered as one of the vital organs of vegetation. A superficial observation of the foliage of our trees and plants does not lead one to suppose that they occupy such an important position as they in reality do; but the microscopist soon determines their relative value as organs of nutrition, and as indispensable members of the vegetable system. The two surfaces of a leaf are in many respects quite different from each other, and yet both are well adapted for the duties which they are called upon to perform. The upper surface is generally of a deeper shade of green than the lower, and seldom has any openings, whilst the latter is supplied with minute breathing pores, called *stomata*. The inner structure is formed of a collection of cells similar to the green bark on young wood, ramified by numerous veins of woody fibre. The cells appear to be arranged in two series, those adjoining the upper surface compacted, oblong and erect, whilst the others are parallel to the under surface, and frequently loosely arranged, with apertures between. Thus we see that the air, vapor, &c., which may enter through the previously mentioned breathing pores, can readily be transmitted through these interstices in the lower cells, and then passed onward to the branches.

A wise precaution in nature is that many plants, natives of tropical countries, have several layers of these closely connected upper cells, which prove a valuable safeguard against the scorching heat so common in these climates. We ascertain, upon examination, that in the case of water plants, where the leaves float, the above rule becomes reversed, and that the stomata is in them on the upper surface, whilst the under side is destitute of them; and there are instances where leaves standing in a vertical position have breathing pores on each side alike. Again, the foliage of plants which are entirely submerged, has no stomata at all, and, as a necessary consequence, is entirely destitute of the long, closely connected cells usually found near the upper surface. We thus have a beautiful illustration of the manner in which nature provides for all her works, adapting the means to the end, with such a perfect system, that the Atheistic belief in chance has no foothold with such proofs as are here presented. The stomata are plainly discernable with a good microscope, and are each surrounded by two cells, differing in form from the remainder of those in the leaf. In succulent plants these organs are almost or altogether wanting—a wise provision of nature, for in the fleshy, watery leaf growing in a country where rain seldom falls, the plants retain within their system a constant supply during the prolonged scorching droughts. In regard to the number of these apertures in some plants, I make the following extract from Carpenter: "It has been estimated that no fewer than 160,000 are contained in every square inch of the under surface of the leaves of *Hydrangea* and of several other plants, the greatest num

ber seeming always to present itself in species the upper surface of whose leaves is entirely destitute of these organs." The skin or cuticle of the leaf, frequently termed the *epidermis*, is a membrane composed of small cells of different shapes, approaching in arrangement the peculiar venation of the leaf. These cells are clear, and the contents of the lower cells are shown directly through their translucent structure.

We often notice the accumulation of water in globules on the upper surface of a leaf, which suggests the presence of an oily coating; but this phenomenon is due to the presence of a waxy substance contained in the cuticle, rendering its walls impervious to the outside atmosphere, and preventing its contents from being quickly evaporated. The woody fibre of the leaf, called the *vascular system*, embracing the leaf stem or petiole as well as the veins, is very prettily shown in the skeleton leaves now so frequently used as ornaments. We thus have an opportunity, after the process of maceration, to examine the vascular tissue of leaves in the best possible manner, for all the cellular tissue, as well as the spiral and dotted vessels, has been eradicated. These bundles of woody fibre originate from the corresponding tissues in the young branch, and then passing along the leaf stem in our fruit-bearing trees, extend in a straight line to the apex or point of the leaf. The ribs and veins are of the same nature, and branch off in every direction from the mid-rib, thus forming a perfect net-work, but are only for the purpose of rendering support to the leaf.

STERILITY.

I have thus given you a crude outline of the internal structure of our fruit-bearing trees and plants, and, had I the time, it would afford me great pleasure to describe the appearance of the diseased tissues as they appear under the microscope; but I will merely ask your attention for a few minutes to a single disease and its bearing upon the operations of the horticulturist.

Perhaps no subject embraced within the scope of pomology is exciting more attention at the present time than that of sterility in our fruits, and you may perhaps remember my remarks on this subject two years since, wherein I took the ground that it was caused almost exclusively by an arrest of vigor in the tree. Since that time my views upon this important point have undergone some change; that is, I consider this peculiar state of the blossom may be attributable to other influences, or, in other words an excess of vigor frequently proves as unfortunate as a lack of vitality. For instance, if we examine a very luxuriant healthy young tree, we find it rarely seems inclined to form blossom-buds, and consequently flowers and fruits; but as soon as this excess of action becomes disturbed or arrested, the tree at once forms blossom-buds and fruits.

Now, we know that the formation of blossom-buds and flowers is generally one of the last efforts of a branch to perfect its growth, and in proportion to the amount of vitality in the tree, is inflorescence produced. Vitality may be checked in other ways than by an absence of vigor, and my experience and observation assure me that Dr. Masters, the English botanist, is correct when he asserts that an over-fed plant, equally with one that is starved, may be thrown into fruitfulness. But here comes in the query, which of the two is the more preferable? For myself, I should not hesitate to say that I certainly prefer enfeebled to excessive vigor in promoting our object.

In the end, the latter course must produce *plethora*, which is the sure forerunner of some disastrous disease. These remarks do not in any way influence the views that I expressed at a previous meeting, in regard to the application of highly nutricious fertilizers to an enfeebled, sterile tree, for in such cases I know it to be a judicious course; but hundreds of trees are annually destroyed by excessive kindness, in place of a uniform gentle treatment, that would surely produce a sound, healthy growth and a moderately productive crop of fruit. In a botanical explanation, flowers are nothing more than branches in another form, having been checked in their growth; and the different parts of the flowers are in reality leaves, also in a changed condition. This is exemplified every day of our lives by the commonest forms of vegetable life, and this change must occur from some inward causes, which I have termed excess and lack of vigor, either being capable of causing the arrest of vegetation, and producing the change which always ends in flowers and fruits. The question of *double flowers* and *variegated leaves* has also a bearing upon this subject, but I have not time to explain their cause at this time.

SUGGESTIONS.

According to time-honored usage, I now take the liberty of offering a few suggestions relative

to the rules and order of our Society and its meetings. The first question for our serious consideration, is how can these meetings be improved so that they shall increase in usefulness and interest? Our aim undoubtedly is to benefit the whole fruit-growing community, and with this idea, the query of how best can it be performed, is one that I find somewhat difficult to solve. Such a dissimilarity of views appears to prevail among our members, that I would suggest the question should be freely discussed, and all proper plans for improvement receive due deliberation. We may thus be enabled to accomplish more good, and so popularize our annual conventions, that every person who feels an interest in the advancement of pomology may be induced to meet with us and assist us in our labors. Since I have had the honor of presiding over this association, no portion of my duties has been so difficult to perform as this apparently unimportant task; and yet in reality none are of such great consequence, or, as it were, affect the prosperity of our Society to such an extent. I would, therefore, again ask for your consideration of this subject, as well as for a free and unreserved comparison of views in relation to its improvement in evey form.

The finances of our Society are not in as flourishing a condition as I could wish, for although we have had sufficient funds during the past year not only to meet all current expenses, but also to liquidate a portion of our previous debt, there still remains the sum of $188 38 unpaid. I would, therefore, recommend that our members should replenish our treasury by an assessment of $1 each, additional to their annual fee, and by this means we shall have a surplus for meeting every unforeseen contingency that may arise. Owing to the liberality of our late Legislature in printing gratuitously the "Proceedings" of our Society for the past year, and in the belief that we may again be favored by that body in the same manner, this annual outlay has ceased to be a source of expense to our members for the present; but there are other necessary improvements, which can only be accomplished by an additional amount of funds in our treasury. I am of the opinion that one year's extra assessment will be sufficient for the above purpose; but this also I leave for your judgment to decide. Should you deem it most prudent to leave the whole matter to private and individual subscription, I will cheerfully join you in this, but I should prefer a specific equal sum to be paid by each member.

I take great pleasure in calling your attention to the printed report of our Proceedings for the past year, and, notwithstanding the omissions and errors contained therein, I believe it to be creditable to our association, and an honor to the State. I have in contemplation several additional features to be added in our next issue, which I hope may make it still more worthy of your regard; and in carrying this out, I shall cheerfully assist my successor in office to the best of my ability. The insertion of lithographs illustrating our native seedling fruits of merit, can be increased if our members will kindly forward to the proper authorities neatly executed sketches, together with a carefully prepared history of the same.

The exhaustive treatise on insects injurious to the Apple, together with the excellent illustrations accompanying the same in our recent Report, should be followed by similar papers on other classes of depredatory insects, all of which will no doubt be performed.

I again refer you to Article VI of our Constitution, in relation to the appointment of Professors on Entomology, Botany, Horticultural Chemistry and Geology, and if in your judgment it should not be advisable at this time to fill all of the above, a portion, at least, would, in my opinion, greatly increase our usefulness. In the matter of valuable papers for reference to be incorporated in our annual reports, these appointments would prove highly advantageous in many ways. We do not always desire our Society to be in its infancy, and confined to the rudimental principles and elementary studies, so that we really need a scientific basis, by aid of which we may progress to a higher development of our cause. Not only will suitable teachers assist us individually in this matter, but they will assuredly bestow upon us, collectively, a certain degree of influence for good, established and permanent, which shall make us in future years more useful and popular with kindred organizations.

Frequent and social intercourse with each other, as well as with pomologists of other States, exerts a tendency towards emulation, and induces a spirit of inquiry in us all. To encourage this commendable desire, and likewise to impart unto our fruit-growing community a knowledge of what is transpiring around us, I feel the need of an active, interested, ad-interim

Committee. Although our By-Laws provide for such an appointment, the area of labor is too extensive, and should not be left to members of the General Fruit Committee. In my opinion, a few of our members who feel willing to act in this capacity should be selected, whose business it should be to meet at least once or twice during the summer and autumn months, and visit the most interesting localities where fruit-culture is practiced successfully. They will thus be prepared to present a valuable report, giving such important data as may in their judgment best assist our cause. Such a committee would also constitute the proper department to whom might be sent specimens of new or unknown fruits for description, with any other matter in connection with the subject.

For the purpose of increasing our sphere of usefulness, I would ask our Corresponding Secretary to ascertain the name and residence of one or more reliable fruit man in each county of our State, as well as in neighboring localities, who would be willing to co-operate and correspond with our General Fruit Committee, so that we may annually prepare an accurate report of our fruit crop, together with all useful and important information relative to diseases and insects, the introduction of new fruits, peculiarities of soil, locations, &c., &c. In this respect I fear we are behind some of our sister associations, and in my opinion the matter should not longer be delayed, combining, as it does, the elements of success more fully than any feasible plan with which I am acquainted.

The resolution offered by Dr. Taylor, of Chester Co., at our last meeting, to petition the Legislature for a State Department of Agriculture, Mining and Geology, has received due attention at the hands of the committee appointed for that purpose, and in view of the manner in which our delegation was received, as well as the interest that has so evidently been aroused in regard to such a great public improvement, I should feel pleased if our Society would renew their application to the Legislature for the same purpose. Those who feel inclined to doubt the feasibility of further work in this direction, should consider that it is not the work of a moment, but rather the labor of years, and if we should be instrumental in having such a department as is proposed once in operation, we shall enjoy the satisfaction of knowing that we have performed one good deed at least in a public capacity. I am exceedingly sorry that Dr. Taylor has been prevented from attending here at this time, but he wished me to say to this convention that he feels very sanguine as to its success, and that he cordially unites in again presenting the facts to our Legislature during the present winter.

CONCLUSION.

In conclusion, I am with you heartily in any and every project tending towards the advancement of our Society, and not this Society alone, but the more comprehensive and broader platform of universal education. By this I mean, that we may so improve and elevate the systems of education that our cultivators of the soil may be induced to look with kindness and leniency upon the spirit of inquiry that is already being felt as a power in the land. The sooner we disabuse ourselves of the idea that we are perfect adepts in horticulture, the more readily will we be enabled to learn those mysterious truths which can only be free to the diligent student who examines for himself, and personally proves the correctness of the theories he may have learned from books. We are all of us students, and I am afraid too many of us have not mastered the alphabet, as it were, in this great study of nature; and until we do possess a better acquaintance with the primary principles of this lesson, it is absolutely folly to undertake the higher branches. Again quoting from a lecture delivered by Prof Huxley to the Workingmen's College of London, I may be allowed to say that I endorse it all, word for word:

"To every one of us the world was once as fresh and new as to Adam. And then, long before we were susceptable of any other mode of instruction, nature took us in hand, and every minute of working life brought its educational influence, shaping our actions into rough accordance with nature's laws, so that we might not be ended entirely by too gross disobedience. Nor should I speak of this process of education as past, for any one, be he as old as he may. For every man the world is as fresh as it was at the first day, and as full of untold novelties for him who has the eyes to see them. And nature is still continuing her patient education of us in that great university, the universe, of which we are all members—nature having no Test Acts."

And so I leave this subject with you my friends, for your serious consideration, believing that it will make us all wiser, as it will make us all

better. I thank you sincerely for your kindness in leaving your homes to meet with us at this time, and you especially who have come from distant States to assist us with your knowledge and experience. Each individual member, I believe, has performed his part faithfully and well, and therefore the Pennsylvania Fruit Growers' Society to-day occupies a more useful and altogether higher position in the rank of real live working associations than ever before.

I will not detain you longer, but simply thank you for your kind attention to my remarks.

EDITORIAL.

CORRUPTION IN HIGH PLACES.

This is the heading which meets us everywhere in the daily papers, and every class in the community pauses in astonishment, and to ask what is to be done. We, as horticulturists, are as much interested in this matter as any other class can be, and we boldly say that horticulture is in no way responsible for the prevailing disease.

Indeed, we will go further, and charge that it is the inordinate love of money for its own sake, which is the sole cause of the trouble,—and we hold that it is the duty of every one who deplores the sad state of affairs, to set his face strongly against this tendency,—and that in no way can this tendency be better fought than in diffusing a taste for gardening.

Now, the gardening that we mean is not the gardening that many will understand. Dollar and cent horticulture will have little more effect on the regeneration of the world, than dollar and cent politics; but that gardening which does not look so much at the money which it makes as the pleasure which it brings, always has and always will be a power for good in this world.

We by no means despise dollars and cents in horticulture or elsewhere. On the contrary, we look on thrift and industry as among the godliest of virtues; and honor and esteem him who lays up treasures on earth, as next to the one who lays them up in heaven. Indeed, we should have no objection whatever to every one of our readers becoming millionaires, the editors included,—and hope they will be, especially the latter. But we do most sincerely believe that the mere laying up of money is a grand curse,—and that he whose whole career may be summed up in this, that he "died worth a million, but he left all,.and didn't take a dollar with him," has not only lived in vain, but has set an example of immorality that every one should shun and despise. Our fervent hope and desire is, that only he shall have riches who, before he starts on the race for them, shall resolve that he will leave the world better than he found it, and that the people of the world shall be the happier for his having lived therein.

The desire to use money wisely and well as we go along, is one of the best correctives of the temptation to come by it dishonestly. The generous impulse,—the sacrifice of self,—the love of humanity,—none of these ever exist in a remarkable degree in the mere fortune-hunter. They are only found in those who, with a due regard to the chances of future wants, spend their money rationally as they go along.

And we present gardening, in its purest sense, as one of the most rational of all these pleasurable things. Let any one cast his eyes around him on those amateur horticulturists he may chance to know, and we feel positive he will find them among the best men in the community. Look at the habitations of the poor,—and so sure as you see a neat piece of garden about the house, a few well-tended flowers in the windows, or even a few well grown vegetables in the yard, you will find a happier and better man than the one next door, about whose windows the stench of manure takes the place of the odor of roses, and whose parlor companions are of the Swinish breed.

Many years ago, when Springbrook, then in possession of Caleb Cope, Esq , was in its prime, thousands flocked there to see the superb Victoria Lily flourishing as happily as in its native Amazonian home. The odoriferous and immensely large flowers and gigantic leaves scarcely struck the beholders more than did the fact that it cost several thousands of dollars to build a house to grow one plant Of the throng which came and saw and admired, there were

some, who, far wealthier than the honored man whose name we have mentioned, would yet comment on the extravagance of the display; but we found, as time wore on, that it was just these men, ever ready to comment on waste, who would "sell these valuables and give the money to the poor," who were ever foremost to sacrifice the best and dearest treasures of their hearts for thirty pieces of silver.

But after all, most of the horticulture of Springbrook was really for the poor—not, perhaps, in the worldly sense of the term, but for those who were debarred in some way from growing for themselves what the generosity of Mr. Cope could supply. The thousands of bunches of hot-house grapes and the large amount of luscious fruits and forced vegetables could, perhaps, have been bought in the markets at a lower price than it cost to raise them; but they would not have been given away, as nearly all these were, with the pleasure, or received with half the enjoyment that these home-grown things conveyed. The grapes by the sick bed, and the Victoria flower at the marriage feast, were doubly valued as the gift and the production of Caleb Cope.

All over the world it has been found that gardening is one of the best aids to virtue. This is no mere sentiment,—such as we know many writers on morals like to indulge in,—a wish which is father to the thought; but a practical fact, which is being acted on by humanitarians who believe in carrying science into society, as well as into the workshop and into the field. Those schools are found to be the best which have trees and flowers about them; reformatories and houses of correction which have gardens are the most effective; and it has been found that soldiers usually, from the unnatural position they occupy in a peaceful world, not by any means famous for virtue, are wonderfully improved by having gardens about their English camping-grounds. Miss Burdett Coutts, one of the wisest of English philanthropists, does her best to encourage the growth of flowers amongst the lower and vicious orders of English society, solely from the good she has observed to result from it.

We hope we shall not be misunderstood about the money question. We know we have hundreds of readers to whom "will it pay?" must of necessity be the first question with them. We intend to aid and encourage them. It is an honorable and useful position to fill; but though we approve of this as a first question, we mean only to hope that it will not be their last, but that they will steadily keep in view the higher aims and hopes of horticulture.

It was a pleasant thought which placed the primeval man in a beautiful garden. It was the childhood of the human race, and just as human children at the present day delight in nothing so much as to have a little garden of their own, it was no doubt suggestive of the most ancient and most innocent pleasure. All of us as we grow old wish we could be but children again, and what can make us feel so young as to keep ever fresh and green those pleasures of childhood which are adapted to all ages and conditions of life? Indeed, almost all men resolve when young, to have a nice garden some time "after they have got some money." They go into the pursuit, and only too often to find that this is all they get,—the taste is gone!

We offer these thoughts at this time as opportune to the great question of the day, how shall we stem the tide of corruption now raging in the land? We should teach that money is not the sole end of man in this world,—that unless some rational use is made of it, it is a great evil,—that the great end of man here is to enjoy himself rationally as he goes along, and to aid others in this rational enjoyment; and that one of the most rational of all pleasures,—rational in this, that while it confers a host of pleasures in itself, it is a useful aid to other virtues,—is the pursuit of gardening.

TRAVELING RECOLLECTIONS.

The eastern slope of the Rocky Mountains, deprived of much rain by the condensation of the cloud moisture chiefly on the western side, yet seems to have attractions for settlers on account of the enormous richness of the soil under irrigating systems of agriculture. At first thought, it seemed strange that mere rotten granite rock, and the little clay mixed with it, should possess such advantage. A few years ago this would have been deemed impossible in the light of the science of the day. but now we have learned that dry earth is a powerful absorbent of the noxious gases of the atmosphere, which gases are just the thing which makes a soil fertile for the growth of plants. A very dry climate, therefore, is well calculated to enrich the earth; and when water is at command, so that just as much and no more can be given as the plants require, the perfection of culture is reached.

There are many flourishing towns and settlements along this region which depend chiefly on irrigation for their agricultural results, although the bunch grass and other vegetation of which we have before spoken, yield good food for stock, which they graze on in the open country, even in winters when the ground is not wholly covered with snow, as is often the case. At Greeley there were remarkably fine crops, both of farm and garden produce, some of them excelling anything we can grow in the East in the ordinary way. The *Cache le Poudre*, a small river, so called on account of quantities of powder having been buried here to save from falling into the hands of the Indians in the ancient bloody times, is not a very heavy stream; and we fancy that when the colony shall go beyond a population of twenty thousand, it will hardly afford to have another settlement tap its watercourse some distance nearer the source. For these reasons we should judge the population of a territory like this must always be limited. Still it has attractions, and the excellent crops which they can raise under the irrigating systems will always be amongst them.

Greeley, under the head of men like Meeker and Cameron, has been a great success in so short a time. Though not two years old, there were between four and five hundred houses, and the signs of continued prosperity in the increasing prices and demand for real estate were abundant.

The great Union Pacific Railroad afforded us an excellent opportunity of seeing the great State of Nebraska across its whole width—some 800 miles. The dry region does not extend east from Laramie much further than Sydney or Julesburg,—say for about 250 or 300 miles. Certainly after the south and north fork of the Platte River unite, which they do at the town of North Platte, a most magnificent country is reached, which is not to be surpassed by any in the States for fertility and productiveness by natural causes alone. This gives the best half of the State to our eastern systems of agriculture, beyond all doubt; and population, as exhibited by the increasing number of farm houses along the line, are evidently finding it out. At different stations along the road people would bring us mammoth potatoes, corn, beets, watermelons, to show what the soil would produce; and one gave us some account of his great success with a large plantation of Black Walnuts. But of these things we have never needed any evidence. Indeed, it has been a source of astonishment to us that any idea that these things cannot be grown here should ever have prevailed. The magnificent grass of the great prairie of Nebraska is sufficient to disprove this where proof is needed. In some places, where we could see groups of Pawnee Indians gazing at the train as it passed through their country, it was hard to see much of the legs of men or of the horses, through the luxuriance of the vegetation in which they were standing. A country which can grow grass to perfection needs little other praise, for with this all other good things in farming or gardening follow. The whole region watered by the Platte and its tributaries will no doubt be the final great cattle region of the United States; and this, after all, is the foundation of our best agricultural districts.

Every one knows that when one's face is turned towards home after a long and fatiguing journey, time is not taken to see as much of a country as when on the outward-bound track; hence we had not the chance to see as much of Omaha, Council Bluffs, and other thriving places, as we might have done had we went out on that route. However, we were much indebted to Dr. Miller, of the *Omaha Herald*, Mr. O. F. Davis, the Industrial Agent of the road, and other gentlemen for much valuable information.

The country along the western line of Iowa, bordering the Missouri River, is evidently of the richest character, and if one is enraptured with the deep ploughing theory of culture, he might turn up here one hundred feet to advantage. The contour of the surface is usually an immense mass of small hills from one to two hundred feet; though, of course, this often gives way to wide extent of prairie and old river bottoms.

We had an opportunity of spending a few hours at Kansas City, which we highly enjoyed, as giving us a glimpse of one of the most flourishing towns on the American continent. What gratified us particularly was the evident taste of the inhabitants. With an immense amount of wealth the architecture was of the chastest character, and the garden art of an excellent cast. The love of flowers appeared wide-spread. Scarcely a house but in some degree or another had its floral adornments.

We shall have to close these far Western sketches here. A monthly magazine can but give a very imperfect outline of a six weeks' journey through a region where so much was new. But we trust from time to time, as the subjects permit, our readers will yet reap the benefit of our observations.

SCRAPS AND QUERIES.

WINDOW PLANTS.—*C. M., Milwaukee, Wis.*, writes:—"I would like to trouble you for answers to the following:

"Some time ago I took my plants out doors, and gave them all a good wetting with a syringe and water that had the chill taken out of it; none of the plants seemed to suffer, excepting one Tea rose that had just come out with young foliage; soon after the operation the leaves of this plant blackened and withered, and now it is evidently dying. Can you surmise why?

"Secondly, how would you advise me to keep my window plants clear of lice? I have very seldom time to syringe them, and consequently they are being overrun. What effect would chloride or the fumes of iodine have on the plant if applied to this purpose?

"Thirdly, I had some rose cuttings in a pot; they all started finely, but then dried; did they have too much water or light, or does this sometimes happen, even if the above named conditions are attended to properly?"

[The syringing itself would not hurt the rose. What is the matter with it could scarcely be told without personal inspection. Roses sometimes are liable to the attack of a fungus similar in its effects to that which produces the fire blight in the pear. The fungus will eat its way round the stem for half an inch wide, completely or nearly girdling it, when all above is injured or entirely dies. See if anything has happened. At other times roses in winter suffer from defective drainage. The water does not pass rapidly away, the young fibres rot, and the leaves soon after fall. A little Scotch snuff, powdered tobacco leaves, or tobacco water would probably kill the green fly. Rose cuttings very often die after they have pushed out leaves a little, and before roots have come. This is, in fact, just the time that professional rose-raisers lose so many. There has been a great strain on the vital energies to produce leaves in advance of roots, and, to make matters worse, these leaves, as fast as they expand, evaporate the juices; excellent results follow often when these buds are cut back to near where they start from, so as to leave no surface of this kind until after the leaves have pushed. Still the cuttings may have been injured by other causes.]

RAISING EVERGREEN CUTTINGS.—"*Novice*," *Kokoma, Indiana*:—"Will you be so kind as to answer the following queries in the *Monthly*:

"1. Which of the common hardy evergreens can be propagated from cuttings in the open air?

"2. What is the proper time to make them?

"3. What kind of soil is best, and how should it be prepared?

"4. What should be the conditions in regard to shade and watering?

"5. What length should the cuttings be made, and how deeply inserted in the soil?"

[1. All of our hardy evergreens can be raised from cuttings with a little experience; but in the nursery trade this is chiefly confined to Box, Yew, Juniper and Arborvitæ.

2. They are usually put in any time in the fall and early winter before the severe frost has injured them. Sometimes shallow shelves or benches are made in a greenhouse; at other times shallow boxes are employed, two or three inches deep, and filled with sandy soil, or pure sand. A temperature of about 60° is maintained, and the cuttings not suffered ever to have the full sun. The soil or sand is kept regularly damp. Pieces are used from two to four inches, and inserted about one-third their depth.]

NEW NASHVILLE (TENN.) FIRM.—Truett, Sons & Morgan is a new combination for the general nursery, and florist business, in this pretty town and excellent nursery centre. The names of the gentlemen composing it have often appeared in the reports of the Tennessee Horticultural Society, and we doubt not represent gentlemen who will do credit to the nursery trade.

CULTURE OF GLOXINIAS, GESNERIA, AND CYCLAMEN.—*Mrs. J. J. B. H.* wishes that some of the obliging correspondents of the *Monthly* who have had good success in the culture of these plants, would give the readers details of their experience. Will they favor us as requested?

RHODODENDRON CULTURE.—*R. S. W., Mumfordsville, Ky.*, asks: "Please give me

some instructions as to the culture of the Rhododendron. I purchased a dozen in the East a couple of years ago, and planted them in good, rich earth in my garden; but the leaves have a yellow tint, and they are not the evergreen things I took them for. The first year they were green enough and bloomed beautifully. I was proud of them then; but now I am ashamed."

[These are, no doubt, planted deep—the usual bane of Rhododendron planting. Plant Rhododendrons *on* the surface of the ground, and draw the earth up around them, afterwards tramping or beating it hard and firm about the roots.

In very loose, fine, spongy soil, there is not so much injury from deep planting; but wherever the soil is inclined to clay, surface planting should always be adopted,—not only with the Rhododendron, but with the Kalmia and all hair-like rooting plants.]

SERIOUS ERROR.—Knowing how widely our papers are copied, both in this country and in Europe, we very much regret that in our last "Recollections of Travel," speaking of *Abies Douglassii*, we did not notice in the proof that eight feet in *diameter* was used instead of eight feet in circumference. It was *not* eight feet in diameter. We shall be greatly indebted to those of our exchanges which may use the article, if they will add this correction.

Of minor matters, we may add that *Pinus aristata* is a true Pine, and not of the Spruce section.

PEACHES FOR AN ORCHARD HOUSE.—*Mrs. T. G., New Haven, Conn.*, inquires for the best half dozen varieties—flavor to rule the choice. As a general thing, cling-stones have he best flavor, though they are not preferred for table fruit.

If clings are desirable, try the old Mixon Cling, Chinese Cling, and the Newington. But for six good free-stones, say Crawford's Early, Columbia, Stump the World, Grosse Mignonne, George IV., Royal George.

RAISING RHODODENDRONS FROM SEED.—*D., Chicago, Ills.* The seeds are like dust. Sow on the surface, and cover with some very thin material which will keep them continually shady and cool. They are easily raised if a soil and situation is chosen where they will keep regularly moist without artificial watering. They usually sprout within six weeks.

POMEGRANATES, OLEANDERS, &c.—*A Lady of Harrodsburg, Ky.*: "I am an old subscriber to the *Country Gentleman*, and we are delighted with it and the *Monthly*, as there is a perfect mania in our vicinity, as well as in Central Kentucky, generally on the culture of flowers.

"Should my health improve this winter, I should like to contribute some pieces to your paper, as I have something interesting to tell of flowers and shrubs that I saw in the Cumberland Mountains of Kentucky during a trip to the Cumberland Falls this summer. Then, again, I would like to tell your readers of some of my own splendid plants, Pomegranates and Oleanders, that are fifteen feet high, &c."

[The notes referred to are just the kind of correspondence we like to get. Where any one has success in culture, there are surely some facts which will interest others to know.

These favors are always thankfully received.]

DAPHNE CNEORUM.—*N. J. H., Sandusky, O.*: This plant is of easy growth if planted in any good garden soil that will not bake or become hard in summer time, or that is not too much exposed to the hot sun. Knowing how hot sun injures it, many plant it near trees; but the roots of these large trees dry the ground so much that this drought is worse than the sun. Light soil, partial shade, with just enough of dampness not to be wet, are all it requires.

CLERODENDRON BUNGEI.—A correspondent sends us this for a name. It has a large rosy head, nearly as large as a Hydrangea. The roots are hardy in Pennsylvania, but the stem gets killed down in winter. The new wood, however, always flowers in fall. It is a native of Japan, and would probably remain out uninjured south of the Potomac.

ERRORS OF THE PRESS, &c.—Messrs. Scribner of New York are issuing an illustrative library of wonders, very well in its way; but the last volume, "The Wonders of Vegetation," from the French of Marvin, and edited with additions by Schell De Vere, D. D., L. L. D., of the University of Virginia, sadly wants a proof-reader with some knowledge, and the editor wants English instruction. Take the two following as illustrations. At page 242 occurs the

following paragraph, which we submit, is a curious specimen:

"In other plants the leaves seems to have a special attraction for insects, which, leaving blossom and fruit alike unharmed, are irresistably attracted by a mysterious charm in the leaves."

This is careless composition, but what shall be said of most vexatious errors in botanical names for want of good proof-reading? This may occur in hasty periodical printing, but in a volume of so much pretensions as the one under consideration, it is utterly unpardonable.

At page 254 we have a description of a moving plant known as the Desmodium gyrans; it is printed twice at least Gyraus. When we see errors like this in houses where proofs go through two or three corrections by persons appointed specially for their professional excellence in proof-reading, we have great charity for those who send us bitter letters when anything goes wrong in our own publication of their work.

BOYER & CO AND C. T. CROLIE.—It seems very funny to a looker-on when the *Carolina Farmer* takes the doings of Boyer & Co. in one hand, and with the other holds up to admiration "our correspondent C. T. Crolie of Plainfield, N. J."

LAXTON'S PEAS.—We are indebted to Mr. Laxton, through Messrs. Thorburn, for a package of the "Superlative" Pea for trial in this country. On the seal is the motto *spero meliora*; but this can hardly be in reference to the Peas, for if the praises given to them in the English papers are well merited, there ought to be little hope for any further improvement.

CALADIUM ESCULENTUM IN THE GROUND.—A Toledo correspondent says: "By the generous use of liquid cow-manure and copious daily waterings on the roots of this plant set in depressed basins on the lawn, I have attained, the past season, leaves measuring between nine and ten feet in circumference."

GARDENERS AND THEIR EMPLOYERS.—In England, as we notice in foreign papers recently, there has been some discussion as to the right of nurserymen to "entice" gardeners away from one place to better ones. It is said that a first-class man can always be had if only the nurseryman is given time to operate. In our own country we have some of this trouble. A distinguished firm writes:

"It is quite a common thing for parties to come here and offer our men inducements to leave us and go to them; ladies do the same with female servants. So, with rare exceptions, it is every man and every woman for themselves, and the d——l take the hindmost."

As a general principle, it is one's duty to take care of himself. A man's labor is often all his capital, and it is very hard for him to stand still and see better places where he might get much higher wages and better circumstances, pass away; on the other hand, it is excessively annoying for an employer to have a man whom he supposed well satisfied give notice to quit at the most inopportune time, often to his serious loss. We have known gardeners of high-toned principles say to their employers that they engaged only on the condition that they should be free to take a better chance if it offered, and whose only return for this candor was a sudden notice to quit as soon as another gardener came along. Such honorable conduct on the part of gardeners is not likely to be repeated, and others who hear of it act also on the sly and secret course as the only protection to themselves.

As a general rule, however, we think those gardeners will fare best who, when a chance to much better themselves comes up, talk quietly with their employers about it, before taking any steps in the matter. Even a gentleman who engages a man "on the sly" will always suspect that the gardener will serve him in the same way at some time.

DEATH OF MR. LYMAN.—Though the smallpox has been widely prevalent through the United States this past winter, we have heard of no loss of any of our representative men by it except of Mr. Lyman, the Agricultural Editor of the *N. Y. Tribune*. The writer's first personal acquaintance with Mr. Lyman was on the Agricultural Editorial Excursion (as far as Kansas, where he left) last year, during which he impressed all with the earnestness of his pursuit of knowledge. As a member of the great editorial circle, his character and ability have been long known to us and admired.

PLANTS FOR BLOOMING IN WINTER.—We are so often asked for lists of winter-blooming plants, that the following will be useful. They were taken from plants in bloom in the green-

house at Rhosynmynydd, the suburban residence of J. P. Jones, Esq., Blockley, West Philadelphia.

Abutilon striatum vexilarium.
Ageratum cœlestinum variegatum.
Allium Neapolitanum.
Aspidistra lurida variegata.
Azalea Fortunii striata narcissiflora.
Bulbocodium vernum.
Coronilla glauca variegata.
Cobea scandens.
Cuphea platycentra.
Cyclamen Persicum.
Cypripedium insigne.
Daphne venusta indica odorata.
Erica Mediterranea.
Gesnera splendens.
Habrothamnus elegans.
Jasminum grandiflorum.
Justicia purpurea.
Libonia floribunda.
Linum trigynum.
Lantana Sellowii.
Lopesia rosea.
Mannettia bicolor.
Narcissus tazzetta.
Oxalis grandiflora versicolor.
Primula sinensis fl. pl. alba.
Rhododendron arborea rosea.
Rosa Banksia alba.
Rubus fruticosus pomponius fl. pl. Japonicus.
Salvia coccinea.
  gesneriflora.
  involucrata.
  splendens.
Sparmannia Africana.
Tropæolium fl. pl.
  Lobbianum.
Ulex Europæa fl pl.
Viburnum suspensum.

TWO KINDS FROM ONE SEED.—"*Monon*," *Cincinnati, Ohio*, says: "Enclosed, I hand you an extract from our local paper. As I note you have paid some attention to these matters, will you please give an opinion on the possibility of the result as stated?"

"An Indiana correspondent of the *Rural New Yorker* writes: 'A friend of mine, a lady of undoubted veracity, recently informed me that several years since she cracked a peach pit which contained two kernels; desirous of noting the result, she planted the kernels, which in due time germinated, grew and bore, the one a large white, and the other a large yellow peach; each distinct from the other in its habit of growth, appearance and flavor of fruit."

[Certainly possible. A single grain of pollen only, fertilizes each single germ, and every pollen grain has a distinctive character of its own. The two kernels, though under one seed-coat, were each fertilized by its own pollen grain; hence must follow a distinct form.

BUSINESS NOTICES.—It is becoming very common with friends sending advertisements to the publishers to add "ask the editor to notice our business,"—and in some cases to make an advertisement conditional on such notice.

We never admit anything into our reading columns as advertisements or to aid them; not one dollar has ever been received for anything that has appeared here. If we note any *novelty* in one's business, or anything *specially* deserving of praise, we hold ourselves free to do it; and are glad if it benefits the persons interested. It is part of the reward which "originators of new and good ideas" are entitled to from the public. Beyond this we cannot go. The advertising rates of the *Monthly* are low enough "in all conscience." All advertisers must stand on an equal footing there.

O. S. H.—Plant for name grows on margins of salt marshes by the sea-shore.

This was ground to dust when it came to hand, but appears to be *Iva frutescens*.

LECTURE ON HYBRIDIZATION OF PLANTS was announced to take place at Horticultural Hall at Boston, on the 7th of Feb, by Hon. M. P. Wilder.

FRUIT PROSPECTS IN KENTUCKY.—*J. A. McK., Cynthiana Ky.*, says: "Peach buds are nearly all killed in Central Kentucky. The thermometer sunk to about 10° below one morning, about 23d of Dec. last, and I suppose it is a fact that 10° below kills all exposed peach buds, and 20° or thereabouts is death to the trees. We had no fruit last year; all killed in April by an unseasonable freeze. Pears now as large as cherries; and strawberries and early cherries now beginning to color."

FIRE BLIGHT.—The corresponding editor of the *Pomologist and Gardener* makes the following objections to Mr. Meehan's theory, that fungi are the cause of fire blight in pear trees:

If fungi are the cause of blight, it is hard to account for the following facts: First, they almost universally attack wood of the most vigorous growth, made during the preceding season. Secondly, they are said not to attack trees during a very dry summer. Thirdly, they, it is said, have never been known to attack trees either in California or Italy. Fourthly, they will attack trees in a most destructive form on one piece of ground, and on another piece of ground not one hundred yards distant, containing trees of the same kind and same age, and even of the same variety, they make no attack whatever, notwithstanding all the trees are surrounded by the same circumstances, in regard to heat and cold, wet and dry, sunshine and shower.

Now, from the foregoing facts and statements, it is difficult to conceive how these fungi attack strong, healthy trees, rather than feeble and unhealthy ones, which would seem to be more easily overcome. It is also difficult to conceive why it is they do not attack in a very dry summer. If they are indeed the cause of blight, it would seem from the analogy of disease, that the most feeble growth would be the most liable. If the pear tree is their favorite tree for attack, why is it that they are never attacked either in Italy or in California? It is surely not to be presumed that fungi are not to be found in those countries. Their attacking trees of the same kind and not attacking others side by side with those that are, is hard to reconcile with their universal presence, and their uniform preference for the pear tree.

[In the East "*Fire Blight*" attacks wood of any age, sometimes as much as ten years old. It does attack trees in a dry summer, but whether more or less than in other seasons, we have no evidence. California or Italy may not have the little parasite there, or the climate may be unfavorable to its development; and as to the fourth objection, that is precisely why it ought to be fungus. If the seed of the parasite is not there, all the circumstances, no matter how favorable to development, would not make it sprout. But no "theory" is needed about this matter now. Any one who cares to take the trouble may see the fungus operating by the aid of a good glass. That which certainly exists must surely be possible.

WAGES OF GARDENERS.—A Vermont correspondent, a year or so from Europe, wishes to know the average rate of wages in the United States. He and his wife together get $900 per annum, she filling the position of housekeeper in the family in which he is employed. It is difficult to give an answer to this question, as rates vary so much with location, and with the duties expected of the gardener Married gardeners usually have a house furnished them, with fuel, and vegetables after the family has been supplied with its wants, and money varying from $400 to $1000 per annum. Usually a gardener with house, thinks he has a pretty good place with $600 per annum. The highest figured places named are not numerous, and only filled by gardeners of a high order of intelligence.

BURNED OUT, BUT NOT BURNT UP.—The following letter to the publishers will be read with interest:

"HYDE PARK,
Chicago, *Jan.* 31, 1872.

Gentlemen:

All that is left of the establishment of Petti grew & Reid, are the flues, chimneys and water pipes. They do not own a square of glass or a plant, and no insurance. Love for the business and the determination to commence again is not burnt out. So to help cheer in these dark times, I want the *Gardener's Monthly* sent for 1872.

Address JOHN PETTIGREW,
JOHN GOODE.

BOOKS, CATALOGUES, &C.

TREATISE ON PUNCTUATION. By John Wilson.

TEACHER'S GUIDE TO BARTHOLOMEW'S DRAWING BOOK. By W. W. Bartholomew.

GRAMMAR OF THE GREEK LANGUAGE. By Alpheus Crosby. From Woolworth, Ainsworth & Co., New York. Through J. B. Lippincott & Co., Philadelphia.

This series of educational works we are glad of the opportunity to commend to our readers, and particularly the first named. There is nothing of which most writers are so ignorant as a knowledge of punctuation. Usually, the author leaves this important matter to the printer, who, as every editor often finds out to

his sorrow and vexation, knows less about it than the author. So lax, indeed, has been all regard to punctuation, that when an author does attend to the pointing of his own manuscript, the compositor pays but little attention to it. Correcting punctuation in proof has been one of the most disagreeable of our experiences. First, there is the author's meaning to be remembered; and this can scarcely be done in the absence of the original "copy," which, when the editor is miles from the office, as in most magazines, he seldom has at hand. In the next place, the author himself, perhaps, has not attended to this duty, and hence there is always an uncertainty.

It is to be regretted that works of this educational class do not receive more attention from horticultural writers than they do. Not only in punctuation, but in grammar and style also, are horticultural writings sadly defective! We feel ashamed to confess that in these respects it is worse than the literature of any other portion of the community. In magazine writing, composed in haste, and often for temporary purposes, it may be slightly excused, if not to be defended; but in our book-writers there should be no acceptable plea. There are a few writers like Hoopes and Downing, whom it is a pleasure to follow, both in the matter and manner of their books; but how rare are garden works like these!

So far as punctuation is concerned this book of Wilson's is to be much commended, though we should not like it as a model for style. He seems to be so enamored of his art, as to adopt the ruggedest road in language, as if he would especially show his ingenuity in pointing his way over it. For instance, the author says in the introductory chapter: "No one will hesitate to admit, that next in value to the capacity of discerning or discovering truth, and of feeling the blessed relations which we sustain to the Being who made us, and to our fellow creatures, particularly those with whom we are more immediately connected, is the power by which intelligence and emotion are communicated from one mind to another."

The style is always the clearest which calls for the fewest stops in a sentence. "No one will hesitate to admit that the power by which intelligence and emotion are conveyed to one another, is next in value to the capacity of discerning or discovering truth, or of feeling the relations which we sustain to God and man, particularly to those of our fellow creatures with whom we are more intimately connected," is better with fewer stops, although the sentence is still imperfect in consequence of its complex ideas. These books, however, will afford good lessons to the student of language, to whom we heartily commend the book.

REPORT OF THE GEOLOGICAL EXPLORATION OF THE 45TH PARALLEL. By Clarence King, U. S. Geologist. Vol. V. BOTANY. By Sereno Watson, Government Printing Office.

The exploration of this part of our comparatively unknown dominion was ordered by Congress in 1867. The country explored lies wholly within the limits of Northern Nevada and Utah, between 111° and 120° longitude, and between 39° and 42° latitude, being the northern portion of what once was called the Great Basin.

The botanical portion of the expedition commenced in July, 1867, by Mr. W. W. Bailey. Mr. Bailey took sick, and in 1868, Mr. Watson, a new name in Botany, took charge in his place. It appears to have closed in the autumn of 1869. The species collected number 1549, and many of them are entirely new. Beautiful plates of these accompany the text. Besides the new ones, descriptions are given of those not new, where they have been before described in various papers and periodicals not of general access to the public, which add largely to the value of the work. With the progress of these discoveries we may look forward to a complete Flora of the United States at no very distant day.

NEW AND RARE FRUITS.

THE BRANDYWINE RASPBERRY. — R. H. of Dover, Delaware, says: "Can you tell me anything of the Brandywine Raspberry? It is being planted here by the acre, and it appears it needs but very little advertising and no puffing, but sells right along. I don't recollect of

seeing any account of it in the *Monthly* or other horticultural papers. My neighbors have got ahead of me for once."

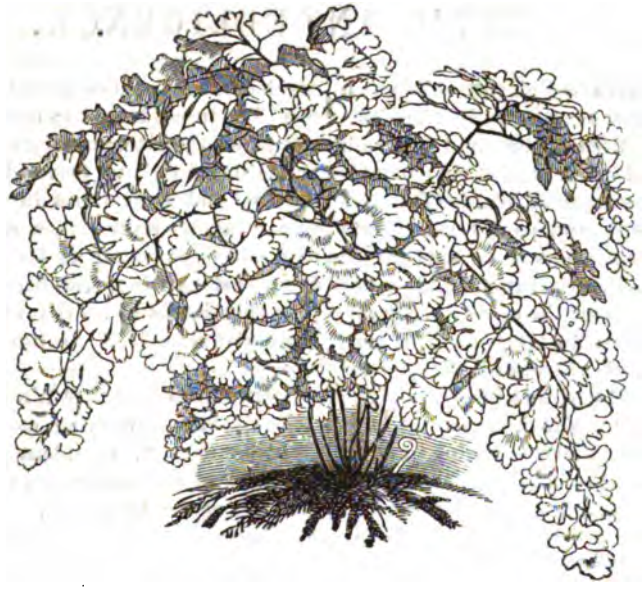
[When in Delaware last spring we heard this variety well spoken of by fruit-growers, in whose conservative judgment we should have faith, but have not seen it personally.

We do not know where or from what it originated. Should be glad of the information by those who know.]

THE SOULARD APPLE AND SOULARD CRAB. —*Mr. D. W. Adams, of Waukon, Iowa* writes: "A note in the January number of the *Monthly* indicates confusion between the Soulard Apple and Soulard Crab. The former is an apple of good size, appearance and quality, but the tree is not considered remarkable for hardiness, and would not be likely to generally endure the winters of St. Paul and vicinity. The latter is certainly a *crab*, belonging decidedly to the *Pyrus coronaria*, and a very astringent, hard fruit, wholly unfit for dessert, but may be of use for cooking in extreme northern latitudes, where no better fruit can be grown. Its culture here is wholly abandoned."

NEW AND RARE PLANTS.

ADIANTUM FARLEYENSE. — This perhaps most beautiful of all the maiden Hair ferns, attracted much attention at the Horticultural Society when exhibited by Mr. Buist last fall. We are glad to find it offered for sale by him in his new catalogue now before us. The following outline sketch will give an idea of it to those who have not seen the plant itself:



NEW ORNAMENTAL TREES AND SHRUBS.—At the recent meeting of the Western New York Horticultural Society, G. Ellwanger presented a report on newly-introduced ornamental trees, among which he mentioned the following: *Young's Weeping Birch*, which has no superior for small lawns and cemetery lots—the branches very slender and drooping, and forming one of the finest weeping trees. Another weeping birch, known as the *Betula elegans pendula*, has long flexible and slender branches, which hang perpendicularly downwards, in lines parallel with the stem, which give the tree a peculiar and distinct habit. The weeping

poplar, *Populus grandidentata pendula*, is vigorous in growth, the branches slender and gracefully drooping, the foliage dark and large, and the whole tree much superior to the old weeping poplar. It will succeed well in all situations and soils. *Betula alba fastigiata* forms a beautiful pyramid like the Lombardy poplar, admirably adapted to a small lawn. The *Crisp-leaved Maple*, originated on the grounds of Ellwanger & Barry, is a variety of the silver maple, and has delicately cut and curled foliage. *Leopold's Maple* has leaves mantled with purplish red, changing to rosy pink, and has a striking effect early in summer. The *Kakir Elm* has upright and large glossy foliage, giving it a distinct character. The *Golden Larch*, from Japan, is of compact and rather slow growth — light green, changing to yellow in autumn. *Magnolia Lenni* is a magnificent hybrid of the Chinese varieties, with dark purple flowers; and *M Norbertiana*, similar to the preceding, and fragrant. Both flower at the same time as the Soulangiana and conspicua. *Paul's New Double Scarlet Thorn* is regarded as the finest of all the thorns, being very double and bright crimson. Grouped with the double pink and double white, it has an exquisite effect on the lawn. *Siebold's Double Dwarf Cherry* has double purple flowers resembling miniature roses.

Of *newly introduced shrubs*, the large flowered *Hydrangea paniculata* is particularly worthy of notice, and is the finest flowering shrub of recent introduction, growing from 8 to 10 feet high, and bearing large pyramidal panicles from 12 to 18 inches long. Its flowers are white, and it continues a long time in bloom. It is still scarce and very little known. *Thunberg's Spiræa* is pink white, a free bloomer and a desirable shrub. A new *Weigela* has pure white flowers, a profuse bloomer and vigorous grower.

DOMESTIC INTELLIGENCE.

THE COLORADO POTATO-BEETLE.—As much anxiety has lately been manifested in the Eastern States, in consequence of the rapid approach of the much-dreaded western Colorado potato-bug, or ten-lined spearman of Walsh (*Doryphora decem-lineata*, Say), and as several reports have lately been published as to its appearance in Massachusetts, Pennsylvania, and other States, and as, in many of the cases, totally different insects have been mistaken for it, it may be well to give a short account of the general appearance and habits of this insect, for the benefit of those farmers who have as yet, fortunately, had no opportunity of seeing it, or of learning anything about its natural history. The *Doryphora decem-lineata*, Colorado, or western ten-lined potato-bug, was described by Say in the journal of the Academy of Natural Sciences, in 1823, as occurring in Missouri and Arkansas, and was so named from the ten black lines on its wing covers, five on each side. One of the first notices of its appearance, as a destructive insect, was in 1861, when Judge Edgerton described it as being very destructive to the potatoes in Iowa; and, in 1862, it was reported by Thomas Murphy, of Atchison, Kansas, as doing much damage to the crops and being very numerous. The insect is said to have first fed on a species of wild potato, growing out in the far West, and is stated to have traveled east about three hundred and sixty miles in six years, or at a rate of about sixty miles a year. They are now said to be found as far north as Canada, as far east as Ohio, and, according to some papers (but doubtful), even in New York and Pennsylvania.—U. S. AGRICULTURAL REPORT.

SOME GOOD BUT NOT WELL-KNOWN PEARS.—At the recent meeting of the Ontario Fruit Growers' Society, President Burnet called the attention of the members to some varieties of pear not generally known. He had found the Fondante de Malines to be superior to the Belle Lucrative. The Graslin was a variety which does not spot; is large and profitable. Ananas d'Ete is hardy, and better than the Bartlett. Duchess d'Orleans is a very handsome and desirable fruit. Madame Eliza is also very handsome. Willermez is very hard to ripen well. Vicount de Spailberg is a very fine winter sort, ripening about Christmas. Of the older varieties, he remarked that the Winter

Nelis requires to be well fed, and it is then one of the very best of the winter sorts. The Vicar of Winkfield should be kept in barrels in the cellar until near the time of ripening; then should be placed in paper bags, and kept in a warm room for about a fortnight, when they will be found to be good. The Lawrence is a very fine pear, always fair. The Sheldon bears great crops about Hamilton, and is much sought for in the market. The Louise Bonne grows well, bears abundantly, and sells well. The Flemish Beauty is one of our most hardy varieties, thriving well even in the vicinity of Ottawa.

KOLREUTERIA PANICULATA.—This is a highly ornamental tree, of medium size, from Japan. Under good cultivation at the West, it grows with great vigor, is very hardy, and, taking the whole season through, is perhaps the most beautiful deciduous ornamental tree yet introduced. Its fine, very dark green leaves and panicles of yellow flowers, a foot to fifteen inches in length, coming out at the ends of the shoots after the trees are in full leaf, succeeded by ornamental capsules, and the bright yellow tint of its foliage in autumn, all serve to make it most attractive and deserving a place in every yard however small.—*Prairie Farmer.*

A LARGE PEACH ORCHARD.—Col. Edward Wilkins, now has thirteen hundred and fifty acres, with one hundred and thirty-six thousand trees. The peaches from his orchard, which is located near Chestertown, Md, are packed in crates and sent to Baltimore by the Colonel's own steamboat, to one canning factory which contracts for the whole crop. In 1869 they netted him $1.10 per crate; this year only thirty-five cents, or 17½ cents per basket. Yet at this price he esteems it more profitable to grow peaches than to grow corn at the rate of sixty cents per bushel for a crop of sixty bushels per acre. Some of his trees, three years old, yielded him two crates to the tree. This is unusual, for a basket per tree is a fair average. Each crate holds two baskets.

DRYING FRUIT.—In the letter from Charles Alden (owner of the new fruit-drying machinery), which was read before the late horticultural meeting at Rochester, he states that a bushel of apples weighs fifty pounds; that the cost of cutting and preparing a bushel for drying is about thirty cents; and that a bushel will yield nine dried pounds, two pounds of which are cores and skins, which, when dried, find a ready market at six cents per pound for making jelly without sugar or boiling—a new product. One bushel gives seven pounds of good dried apples, which sell readily at twenty cents per pound—making, after drying, $1.52 per bushel of apples, with cores and parings. It will be understood that these dried apples are greatly superior to common dried apples, made by exposure to weather, flies, &c. Tomatoes, being very watery, yield only three pounds dried per bushel; but two dried ounces are found to be equal in substance to a one-quart can, and will make as much by adding one quart of cold water and stewing properly. The evaporated tomato sells for seventy five cents per pound. Peaches yield seven pounds from a bushel, one pound of which is skins.—*Country Gentleman.*

THE FUCHSIA.—The Fuchsia derives its name from the German botanist, "Fuchs." The first plant (*Fuchsia triphylla*) was introduced into Europe by Plumier, who took it there from America in the seventeenth century. It is usually found growing on hills throughout the forests of Mexico, Peru and Chili.

Along the Coast Range of California the Fuchsia can be cultivated to perfection; it thrives best in moist and partly shaded localities.

In San Francisco and its vicinity, the Fuchsia seems to be at home, and no plant is cultivated here with greater success both out of doors as well as under glass. In summer and in winter it continues to develop its bright little "ear-drops" (as some people call them) and it is remarkable that the same degree of cold which we had here last winter, would have killed those plants if exposed to the open air in New York or Boston, but had not the slightest effect on our plants; in fact, in many localities they continued to bloom as freely as in May. Under such circumstances, should not the Fuchsia be one of our greatest favorites?

Very often we are asked, can I raise Fuchsias from slips in the open ground? Our answer is, we have met parties who have, frequently, who have stuck slips of year-old wood of the Fuchsia into the ground; they have grown and within a few months have made flourishing plants; and this has been done both in summer and in winter with equal success.

This fact goes far to prove how well our climate is adpted to the cultivation of the Fuchsia.

However, no florist or nurseryman would attempt to raise Fuchsias in that way. The florist takes the young shoots of the present year's growth, plants them close together in pots or shallow boxes filled with sand, waters them well after planting so as to settle the sand close around the stem, and places the box close under the glass, shading them for a few days, and in a month or six weeks roots are formed; the young plants are then transplanted singly into two or three-inch pots, placed again under glass, and shaded for a few days. As soon as the ball of earth is covered with the young roots, the plants must be shifted into four-inch pots; afterwards from four-inch to five-inch, and so on. The grand secret to ensure perfect success is to keep the plants in a constantly growing condition; as long as you keep the plant growing, you will have a profusion of flowers. It is true that Fuchsias will flower more freely with us in the open air than in pots under glass, bnt this is only the case when the soil in the pot is not sufficient to keep the plant in a growing condition. Taking into consideration how easily young plants are raised, we do not see why every one who is fond of Fuchsias should not raise every year young plants from the old ones, and in this way keep a certain number of plants always in readiness to replace the old ones, which should be turned into the flower garden or thrown away.

Some Fuchsias are well adapted for training, while others make handsomely-shaped bushes and trees. We have seen them covering the side of a house twenty feet feet high, and certainly the effect was charming.

The varieties are too numerous to mention, and all of them are good. Every year adds a large number to the already copious list; these are sold in Europe and in the East at extravagant prices. Latterly the florists have succeeded in producing double flowering Fuchsias, and these are in more demand and at much better prices; one of the best and most popular with us is the double white.

At an early day we shall endeavor to give the names and descriptions of the best varieties now in cultivation here.—*California Horticulturist.*

Stability of the Pear in the South.—The *Southern Cultivator* says: Of all varieties of fruits cultivated, none is so capricious as the apple. There is very little certainty of any variety proving to be of the same quality in all localities. We have tested many kinds which have proved to be worthless in our own orchard, and we have had many varieties of superior qualities here which in like manner have turned out to be worthless in other sections of country. There is no way of determining the best varieties for any locality, but by actual experiment. Not so, however, with pears, all of which prove to be identical in quality in all places in the Southern States, so far as we have observed and heard from correspondence. This fruit has been of extra size and quality the past season. Amongst the best early varieties, were the Madeleine, Doyenne d'Ete, Osband's Summer and Old Ananas, and Bartlett. Next came Belle Lucrative, Sterling, Julien, White Doyenne, Beurre d'Anjou, Doyenne Boussock, St. Michael Archange, Flemish Beauty, the last ripening from August to October, and proving to be one of the most desirable and profitable varieties we have ever seen or cultivated.

Seckel, Dix, Gen. Lamoriciere, Clairgeau, Bosc, Grand Soliel, Duchess d'Angouleme, Delice Jodoigne, Winter Nelis, Easter Beurre, Glout Morceau, and many others, grew to enormous size, and were of better quality than we ever before saw them. Were it not for the blight which occasionally attacks the trees, and for which their appears to be no remedy or preventive, there would be no fruit so peculiarly adapted to the soil and climate of Georgia as the pear.

Winter Pears.—A friend inquires, "What is the best winter pear, to follow the Lawrence and Winter Nelis?" We answer, unhesitatingly, *Josephine de Malines.* It is one of those sorts which wear well on acquaintance Although not quite so sweet as the Lawrence nor so high-flavored as the Winter Nelis, we find it more agreeable than either. It is very juicy and melting—the most melting of any winter pear we are familiar with; it is never hard nor gritty, but fine grained, and when the teeth go in the juice pours out. A reason that it is not more popular is the want of attractiveness in appearance. We should add that it scarcely ever rots—at least not until it has been fully ripe a long time. We have now in our fruit-room (end of January) in covered boxes side by side, the Winter Nelis, Lawrence and Josephine de Malines—the temperature and moisture being the same.

The Winter Nelis is more or less dried or shrivelled; the Lawrence, although fresh, has many specimens more or less rotted, or with small decayed spots on them; but the Josephine de Malines remains in good eating condition without any drawback. The fruit-room alluded to, is an apartment in a cellar, with hydraulic cement bottom and sides, separated from the rest of the cellar by a brick wall, and capable of being kept at a low temperature, above freezing, by good ventilation. The pears are in long, flat, cover-boxes. Kept without any care, as too many do, the owner would fail of success, and would probably pronounce the three sorts we have mentioned as worthless fruits and "humbugs."—*Country Gentleman.*

FOREIGN INTELLIGENCE.

GONIOPHLEBIUM APPENDICULATUM.—It is well known that many Fern leaves, even when they are matured, will not stand long in water after being cut—one or two days at the most will suffice to finish their beauty. Even the Maidenhair, though quite matured, will not stand more than three days. I may mention one kind which is a very beautiful Fern in any way we choose to look at it, whether in pot, basket, or Fern-case—Goniophlebium appendiculatum, fronds of which will stand three weeks in water in a perfect state. I look on this Fern as a most valuable one at this season of the year. It is a warm greenhouse kind, and like most of the valuable winter decorative Ferns, is most impatient of heat. It should never be allowed to get dry; and a saucer of water at the roots in summer will assist it very much to mature its numerous fronds for the winter months, when they are found really valuable.—*H. K. in Gardener's Chronicle.*

A NEW LABEL.—We extract the following particulars relating to a new Garden Label from the *Journal of Botany*. The introducer of this new label is Prof. A. Church, Royal Agricultural College, Cirencester: "The indestructibility of solid paraffin suggested to me its use for the preservation of printed plant labels. The plan having proved successful, and the 'paraffined' labels having resisted the adverse atmospheric influences of two seasons. I cannot but hope that more extended trials will confirm my conviction that a permanent garden label, legible and inexpensive has been attained. The following is a brief description of the mode of preparing the labels:—Print the names, &c., of the plants on stout, smooth white paper of suitable dimensions and form. Prepare cast-iron label-holders with a flattened spike to keep them straight in the ground, and with the upper expanded portion so contrived as to have a sunk flat space about a quarter of an inch deep, and the right size for the reception of the printed label and its protective glass cover. Paint this sunk space with several coats of good white paint, and allow it to dry thoroughly. The next step is to unite the label to the glass plate with paraffin. The paper label and the glass being cut to the same size, the latter is cleaned and kept hot,—about as hot as boiling water,—while the label is being dipped into a bath of melted paraffin. The label is then quickly pressed on to the hot glass, a board and a weight being put npon both. When cold, the glass with its adherent label is placed in the sunk space of the label-holder, and secured with good putty. Subsequently, a coat or two of paint on this putty will keep all secure. The above directions are much easier to carry out than they appear to be at first sight, while several contrivances and precautions will suggest themselves to any one who carries them out on a large scale. For instance, the glass plates may be kept hot in an oven, and removed with a pair of crucible tongs as wanted, while another pair of tongs or pincers will be useful to hold the labels during their immersion in the melted paraffin. Here it should be stated that the best paraffin is that which is freest from any kind of fat or grease, and melts at a temperature at least above 56° Centigrade. It might be found advisable to imbed the label and glass in paraffin, or to modify the plan of fixing the label to the glass by putting it, soaked in paraffin, between two sheets, but the principle of all these modifica-

tions is identical. The air and rain are excluded, and cannot give rise to the discoloration of the label.—*Gardener's Chronicle.*

ABIES FIRMA.—A very distinct species, introduced a few years ago from Japan, and generally reported to be hardy, which I believe will prove to be the case, in so far as the severity of our winter frosts are concerned; but like the Abies Morinda, Webbiana, and others, it will always, in its young state at least, be liable to be injured by late spring frosts. At Castle Kennedy there are two plants growing, now upwards of three feet in height, which had previously been slightly protected during spring and early summer months. The last spring, which was an unusually severe one, they were purposely left unprotected. They are both growing in moderately sheltered situations—the one open to the south, the other planted amongst larger trees in an open position, but shaded from the south and east. The plant open to the south had the yonng side-growths blackened, the leaders escaped; the plant in the shaded situation had not a leaf or bud injured in the slightest degree. It will be well, till we have had more experience of this interesting Japanese tree, to plant it on hanging ground, with a west or north aspect, avoiding the bottoms of glens or other low-lying situations, on the one hand, and very high or exposed ones on the other. Where positions such as I have indicated cannot be conveniently had, planting in the shade of larger trees, selecting or making open spaces, and trenching the ground before planting, will be found to answer well for this and most of the spring-tender species. —A. FOWLER, *in Gardener's Chronicle.*

ABIES ORIENTALIS.—Indigenous to the coast of the Black Sea, and also found on the loftiest mountains of Imeritia, in Upper Mingrelia and the neighborhood of Tiflis, forming whole forests between Guriel and the Adchar Mountains. When seen in a good state this is a charming tree. It has a gentle refined appearance, its foliage, as seen during the winter months, when matured, being shorter, finer, and more densely set than the common Spruce. Its habit, when young, is compact, but the tree becomes less so as it increases in size; its branches are peculiarly straight and slender—a line of yellowish brown bark, bare of foliage, is seen on the underside of the branchlets. Useful for planting in dressed grounds or a lawn, by the sides of drives or wood walks, where it is always pleasing. It is quite hardy, and thrives in most soils and ordinary situations, stands high winds better than most of its congeners. Plants, from twenty to thirty feet in height, are frequently to be seen at Castle Kennedy; a plant, twenty-five feet in height, has coned. When to be had cheap enough it will be well worth experimenting with as a forest tree, the more so as its wood is said to be of excellent quality, and very tough.—A. FOWLER, *in Gardener's Chronicle.*

THE ODORS OF PLANTS.—The subject of the phenomena of odor and color in plants, and of the causes which induce or govern them, is one of considerable interest; and the relations which exist between the two are sufficiently striking. Thus, it has been statistically ascertained, and a very little reflection will confirm the conclusion, that white flowers stand highest in number among fragrant species, next yellow, then red, and lastly blue. And it is among white flowers that disagreeable odors are most seldom found, while orange and brown are frequently unpleasant in scent. In such calculations, however, it must be remembered that the appreciation of odors is by no means the same to different people: scents which are agreeable to one, are often the reverse to another. The strong odor of Tagetes patula and T. erecta is not objectionable to some; while others, besides the well-known fox-hunter, are of opinion that the Sweet Violet is a "stinking flower." There are even some unhappy beings—we trust they are but few—who cannot endure the scent of a Rose. The sense of smell, too, is much more acute in some persons than in others; and we have frequently remarked an analogy to color-blindness in the want of perception of odors manifested by some among our friends.

A good summary and comparison of scents will be found in M. Lecoq's "Etudes sur la Geographie Botanique de l'Europe," from which some of the following details are borrowed. In almost every case, however, additional instances of similarity will suggest themselves to the reader, especially if he be gifted with a keen nose, and a good memory for smells. In the first place, it may be laid down as a general principle, that a larger proportion of white flowers are fragrant than those of any other color; yellow come next, then red, and lastly blue; after which, and in the same order,

may be reckoned violet, green, orange, brown, and black.

Among white flowers, certain types of scent are very prevalent. Thus many Umbelliferous plants have a strong odor of honey, which is very marked in Anthriscus sylvestris, and is found also in the aquatic Ranunculi; Eucalyptus glandulosa recalls the same scent; and in the Almond and Apricot we encounter it, qualified by that flavor of prussic acid which is so perceptible in the Hawthorn when one does not inhale too closely the fragrance of its flowers. This scent is intensified in Spiræa Ulmaria; in S. filipendula it is modified by a *soupcon* of the odor which is found also in the Privet and in Actæa spicata, and attains distinctness in the Elder. Many Rubiaceous shrubs have similar odors, and resemble certain Apocyneæ; and the Philadelphus coronarius has so much affinity in scent with the Orange, that it is often called the "mock Orange bloom." Other types of scent among white flowers are presented by the white Lily, the Jasmine, the Tuberose, and the Lily of the Valley. It is curious to observe, that among cultivated plants, white-flowered varieties are very often the most—if not the only—fragrant ones; this is the case with the white Petunia (?) and a commonly cultivated white-flowered Verbena (?). It is also worthy of notice that many of the scents among white flowers are only pleasant when in very small quantity, and become absolutely disagreeable when intensified; this is the case especially with the Hawthorn and white Lily.

Among yellow flowers, the scent of the Orange is often found, we may note, in the common Broom, and in Biscutella saxatilis and other yellow Crucifers. The curious alcoholic odor which has earned for Nuphar lutea its English name of "Brandy-bottle" is found also in the yellow Brugmansia floribunda, as well as in the yellow catkins of Salix caprea. Hippocrepis comosa recalls the smell of cheese, and this odor attains its maximum in the blossoms of Genista scorpius. The honey scent is found in several yellow-blossomed plants, notably in Galium verum and Mahonia intermedia.

Roses and Pinks occur to one at once when sweet-scented red-flowered plants are referred to; but with these exceptions it is difficult to characterize the odors of plants belonging to this series. But among lilac flowers a great resemblance in scent may be traced; thus the sweet odor of Vanilla, which is so powerful in the Garden Heliotrope, is found again in different degrees of intensity in Petasites fragrans, Valeriana officinalis, and the common Lilac; we meet with it also in Plantago media, which is exceptional among Plantains in its fragrance and in its colored corolla.

Blue flowers are very rarely fragrant, and when so, only in a slight degree. The blue variety of Phyteuma spicata exhales a faint perfume, and one or two Campanulas are slightly scented. Franciscea Hopeana has, however, deliciously fragrant blossoms, which recall at once the scent of the Orange and the Tuberose; but although at first blue, they soon lose their color and become white.

Certain species, the flowers of which are of sombre hues, are very fragrant. Thus in the early flowering Calycanthus præcox, one finds a multitude of odors, such as Rose, Jasmine, and Tuberose, harmoniously blended. The night-flowering Stock (Matthiola tristis), Hesperis tristis, and one or two more, compensate by their fragrance for the absence of beauty of color; while other dark-flowered plants, such as the Henbane, have an intensely disagreeable odor.

Thus we see that it is not the most brilliant flowers which are the most fragrant; indeed, many of the most brilliant in color have no scent whatever. The beautiful Malvaceæ of equinoctial America, the Pelargoniums of the Cape, the Passion-flowers (?), the Gladioli, and some of the most striking Luguminosæ are destitute of perfume.

One or two conclusions as to the geographical distribution of sweet-scented plants may be arrived at from the preceding facts, united with many more which space will not permit us to cite. We have seen that a large proportion of pale and white blossoms are fragrant; and it is ascertained that these predominate in northern regions. We may therefore conclude that the relative number of odorous flowers is greater towards the poles than towards the equator. It would seem that the too powerful action of light and heat is opposed to the emanation of the odors of flowers; and we see many species which are scarcely fragrant during the day, become so in the evening or at night. But if the odors emitted by the blossoms are more frequent in the North, the reverse is the case with the essences enclosed in the glands. Plants with fragrant leaves, aromatic fruits, and wood penetrated with essential oil, are scarcely found except in warm or tropical countries.—*Gardener's Chronicle.*

HORTICULTURAL NOTICES.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

At the meeting of January 21st, Mr. Thomas Meehan said, that among the ranchmen and miners of California a belief existed that the mammoth *Sequoias* would live eight or ten years after being girdled. These trees often had strips of bark taken off for some distance up, and completely round, for the purpose of exhibition in other countries. This belief had been generally discredited by those of us accustomed to the prevalent ideas of the effects of girdling. But experience having taught him how often popular observation was nearly at least correct, notwithstanding our predisposition to believe implicitly accepted conclusions, he had watched for some opportunity to test by some observation of his own the Californian idea.

A few years ago an Austrian Pine on his ground had the main stem partially girdled by an insect. The opportunity before referred to suggested itself, and he completed the injury, entirely girdling the stem. It was then staked securely, to prevent the wind from breaking it off at the injured place. The part above the injury was about four years old, and the whole tree perhaps ten years. It continued to grow both above and below the wound until the last season, when the upper portion died. The whole of the section between the horizontal tier of branches above the girdling and the tier below—a space of about eighteen inches—died the same season with the girdling. He now exhibited a portion of the trunk, with part of the stem which died the year of girdling, and part of the piece which had grown above and died last year. There were four concentric rings of wood in the former and eight in the latter, shewing that it had made four annual circles of wood after the complete girdling. He then observed that we might assume that the vital functions could scarcely be carried on between the upper portions of the tree and the lower if the intervening cells were dead. He supposed the cells forming the annual concentric masses of wood had a longer period of vitality in some species of trees than in others. In many trees it was well known that such a girdling as that performed on the Pine would destroy them in one season. A recent examination of a trunk of *Paulownia* led him to believe that in that tree the cells of the annual circles lived but two years. It was probable that even in the Pine family the period of vitality might vary with different species. In the Rocky Mountains of Colorado he had seen many hundreds of trees of *Pinus ponderosa* which had the whole of the bark, for about six feet from the ground, stripped from the trees for the purpose of getting at the inner bark, which was used as food by the Indians; yet he saw no trees which indicated that they had been destroyed by this heavy girdling process.

In the case of the Austrian Pine, however, though the formation of wood went on above the girdled portion, growth was not as vigorous as before. The first season after, the young shoots were about one foot in length; but these annually decreased, until last year they were but two inches.

MASSACHUSETTS HORTICULTURAL SOCIETY.

The annual meeting of this association furnishes the following interesting facts: Balance of $190.27 from last year; received from admissions and assessments, $2186; rent of stores, $11,049.92; rent of halls, $7342; gross receipts of rose-show, $262.76; of annual exhibition, $1054.50; Mount Auburn Cemetery, $1587.14; sundries, $25; total receipts, $24,597.58. The expenditures for the year, including $2861 52 for alterations and repairs of building, $4000 paid upon the mortgage debt of society, and $990.49 expended for the library, besides ordinary expenses, amount in the total to $24,335.95—leaving a balance in the treasury of $261.63. The number of life members added during the year was 29, and five subscription members have been commuted to life; eleven life members have died, leaving the present life membership 534. Thirty-three new annual members have been added, 5 have been commuted to life, 8 died, and 21 have been discontinued, leaving at present 502. The valuation of the real estate and personal property of the society amounts to $268,285 03, besides the statuary and portraits, which are above price. The society now owes $82,500, payable in twelve years, at 5½ per cent., and a loan payable to Harvard College in 1899, without interest, of $12,000. In alluding to the fact that the society has one-fourth interest in the profits of Mt. Auburn Cemetery, the treasurer recommends that measures be taken to secure a voice in the affairs of that association. The corresponding secretary said his duties had been light, and as librarian he had nothing to add to the report of the Library Committee, except that there had been a great increase in the interest in their valuable works.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XIV. *APRIL, 1872.* *New Series, Vol. V. No.* 4.

HINTS FOR APRIL.

FLOWER GARDEN AND PLEASURE GROUND.

Last month we gave our good friends, the ladies, some few hints about seed planting. Now some care will be necessary in the rearing of the young progeny; and they must take care not to do as nature does, for in truth they will find that the usual advice of writers to follow nature in their gardening operations is nothing but a phantom, which vanishes with the daybreak of a little experience. Nature sows millions of seeds for every one she is able to raise. Our lady readers ought to raise every seed, and if our help can avail, they shall. In the first place, thinning is very important. In a patch of seeds perhaps fifty may come up; as soon as the seed leaf is well formed thin out to one half; as soon as the plants have several leaves, thin out one-half of these. In the case of very strong growing plants like Zinnias or Amaranthus, half-a-dozen plants is enough to leave. A thick mass seems to give much bloom. It does produce earlier flowers; but the plants soon die. When they have room to grow with vigor, most annuals will keep in bloom many months. Sometimes it helps very strong annuals to pinch out their tops. It makes them bushy.

April is a good planting month. There is not much art in planting trees, though it is often much of a mystery. Not to let the roots dry for an instant between taking up and planting, everybody knows, but everybody don't do it; in fact, every body deceives himself. We have seen this distinguished individual leave the tops of trees exposed to the sun, with a mat or straw thrown over the roots; and think all was right,—or heel in for a day or two, by just throwing a little dirt over the roots. This is a little good; but everybody's fault is, that although this may be ten minutes of good, he expects to get ten hours, or even ten days' value out of it, and thus he suffers more than if he had done nothing, because he forgets that the branches evaporate moisture from the roots in a dry wind, and the juices go from the roots through the branches, very nearly as well as directly to the air from the roots themselves. So with heeling in. The soil is thrown in lightly, or at most just "kicked" down. "It is only temporary," very few of the roots come in contact with the soil. They can draw in no moisture to supply the waste of evaporation, and thus they stay day after day,—everybody satisfied because he sees the roots covered, really worse than if they had been exposed. We have no doubt that *more trees are lost from imperfect heeling in* than from any other cause whatever. Of course, if the tops be covered as well as the roots, there is less waste of moisture and more chance of success.

This hint will help us in planting. That is, *pound* the soil in well about the fibres, so that they may be in close contact with it; or they cannot draw in the necessary moisture. Should the trees appear a little dry, or the roots badly mutilated in digging, or have few fibres, cut away the plant according to the severity of the injury. It is scarcely necessary to repeat that for this evaporation reason, it is best to plant trees when the ground is rather dry, because it then powders best in pounding, and gets well in about the roots. Wet ground *plasters*, and

leaves large hollows in which roots cannot work.

Arranging flower-beds affords room for a display of taste. Narrow, thin beds, as a rule, have better effects than thick or heavy ones. Edgings to beds are common. The evergreen Ivy is good - so is Periwinkle. The variegated, large-leaved Periwinkle is a treasure. Daphne cneorum is also good—for large beds, Shrubland Pet Rose Geranium is very effective. The new Iresine Herbstii will, no doubt, prove a very popular bedding plant,—better even than Coleus Verschaffeltii. The old tribe Scarlet Geraniums make splendid American bedders, Lord Palmerston and Stella are two of the best, but yet scarce and high-priced. Lanata, Rosamond, Christine, "Really Good," Chance and Lallah are six of the best bedders. The old Harkaway is an enormous bloomer, though for the single flower poor enough; it is one of the best bedders.

Of course planting trees and shrubs is the great April work. The great art of successful planting is not to let the roots dry. More trees die from this cause than most people think. Sometimes a tree is dug up with its roots badly injured; but if the few it has left are carefully kept from drying, it should not die from that cause. It may make but a feeble growth, but it should not die outright. A willow branch stuck in will grow without any roots at all; but if it once gets a little dry, there is no skill in the art to save it.

Place broad-leaved evergreens where they will get no sun in winter, yet away from where the roots of trees will make the ground dry in summer. Deep soil, but shallow planting, is all-important for them. In transplanting, take care of the roots. Good roots are of more importance than good "balls." Balls of earth are useful in keeping fibres moist; but don't sacrifice the best fibres five or six feet from the tree for the few fibres in the ball at the base. When roots are rather dry, after filling a portion of soil, pour in water freely. After all has settled away, fill in lightly the balance of the soil, and let it rest for a few days. This is as a remedy, not as a rule; for watering this way cools the soil, ultimately hardens it, and in other respects works to the injury of the transplanted tree.

Evergreen trees are best moved just as the buds begin to burst in spring. Here, that is the end of this month. The best of all the evergreen trees is the *Norway Spruce* Then perhaps the following in order as named: Hemlock Spruce, American Arborvitæ, White Pine, Silver Fir, Balsam Fir (for deep rich soils), Austrian Pine, Scotch Pine. Amongst the less known evergreens, the following are very hardy and beautiful: Bhoton Pine, Oriental Spruce, Cephalonian Fir, Nordman Fir, Siberian Fir, Grand Fir (*Picea grandis*), Lawson Cypress, Yellow Cedar (*Thujopsis borealis*) and *Libocedrus decurrens*. Of the very new introductions in the way of evergreens, we have seen nothing that we feel sure will be very popular.

We approve of thick planting. Trees grow faster for one another's company, and a place well filled at once, save many years of time to see them grow. Those not wanted after the place has grown some, can be transplanted to other parts of the ground. How to remove large trees successfully we explained last month. Where thick planting is to be adopted, of course care must be taken in locating those permanently to remain.

FRUIT GARDEN.

The apple is our standard fruit, and may always be relied on with reasonable care. The first care is good food. Some talk about too rich soil. We never saw the soil too rich for the apple. Where any trouble arises in apple culture, it will be safe to attribute it to other causes than rich soil. Kitchen ashes, in which table refuse is thrown, is an excellent top-dressing for apples. We like top dressing better than any other system of manuring apple trees. Even nice ditch scrapings are good to top-dress with where nothing else offers. Apple trees are often starved in other ways than by neglect to manure. The apple borer leads to starvation oftener than poor soil. The supply of food is cut off by every move the borer makes. They work at the surface of the ground. Look for them now. If you have no time, set the boys and girls to work. Say they shall have no apples for Christmas or birthday presents if they do not. However, get the borers out somehow, if even by wire and jack-knife. If not soon done they will soon get out themselves, and give you more trouble in the future. After they have left, whether by your invitation or otherwise, keep them out; even though you have to lock the door after the horse is stolen. Paper put on in May, and then gas-tarred, will keep them out; some say it will not, but it will. There is

no doubt about it. One papering will last three years. The weakening of the tree by the borer is why the fruit drops off in so many cases, and is small and scrubby in others. With these cases attended to there will be little left to worry one but the codling moth. This little rascal steals in while you are asleep. Like most of the nefarious tribe, it is fond of the bottle. Fill some with vinegar and molasses, and they will drink—drink drowning sorrow and life at the same time. Wide-mouth bottles, recollect, so as to give them every chance. "But," says Cash-bags, "this takes time which I cannot spare from my counting-house." We were supposing the pleasure of raising fruits by one's own hand would be a recompense. But if the sight of a luxuriant blooming and bearing orchard will recompense, then have some one to do it. If still this gives no pleasure, cut the trees down, for you will buy a barrel cheaper in the market than you can raise them, for without a doubt the man who has his hundreds of acres of apple orchard, and gives his whole personal time and attention to it, will beat you in the dollar and cent race in fruit growing.

In grape raising people seem to go to extremes in management. A few years ago the poor plant was in leading strings. It dared not make one free growth, but it was pinched and twisted into all sorts of ways. Now the "prune not at all" maxims are getting headway, and this is as bad, if not worse. First grape growing was such a mystery it took a life time to study it, and the "old vigneron" was an awfully sublime sort of a personage. He is now among the unfrocked and unreverenced. But there is great art in good grape treatment; and yet this art is founded on a very few simple principles. For instance, leaves are necessary to healthy growth; but two leaves three inches wide are not of equal value to one leaf of six inches. To get these strong leaves, see that the number of sprouts be limited. If two buds push from one eye, pinch out the weakest whenever it appears. The other will be strengthened by this protective policy, and the laws of trade result in favor of larger and better leaves on the leaf that follows. Allow no one shoot to grow stronger than another. If there are indications of this, pinch off its top. While it stops to wonder what you mean by this summary conduct, the weaker fellows will profit to take what properly belongs to them. There is little more science in summer pruning than this; but it takes some experience, joined with common sense, to apply it. This, indeed, is where true art comes in.

From time to time new modes of grafting spring into existence, and are made much of by those who delight in the curious. But they are of little practical value. Cleft-grafting and whip-grafting—either of these are, after all, as good as any new notion. It may serve a useful purpose to note, that grafting may be continued up to midsummer, if only the scions are kept from pushing their buds by being nearly buried in the ground.

VEGETABLE GARDEN.

Few things mark a well-kept garden better than an abundance of all kinds of herbs. Now is the time to make the beds. Sage, Thyme and Lavender grow from slips, which may be set in now precisely as if an edging of box were to be made of them. They grow very easily. Basil and Sweet Marjoram must be sown in a rich warm border.

South of Philadelphia, the more tender kinds of garden vegetables may now be sown—beans, corn, cucumbers, squashes, etc.—that it is not prudent to plant in this latitude before the first of May; and tomato, egg-plants, etc., may also be set out in those favored places. Cucumbers, squashes, and such vegetables can be got forward as well as tomatoes, egg-plants, etc., by being sown in a frame or hotbed, and potted off into three-inch pots. They will be nice plants by the first week in May. Rotton wood suits cucumbers and the squash tribe exceedingly well as a manure. Tomatoes and egg plants that are desired very early are best potted, soon after they come up, into small pots. They can then be turned out into the open air without any check to their roots. Of course, they should be gradually inured to the open air—not suddenly transferred from a warm and moist air to a very dry one.

Early York Cabbage for early use should be set out early in this month. It is an excellent plan to make the holes with a dibble first, where the cabbage is to be set; then fill up the holes with manure-water; and after the water has soaked away, set in the plants. It is rather more laborious than the old way, but the cabbage grows so fast afterwards that it pays pretty well.

It is not a good plan to cut all the asparagus as soon as they appear. A few sprouts should

always be left to grow from each, to strengthen the plants.

Celery, with most families, is an important crop, and should be sown about this period. A very rich moist spot, that will be shaded from the mid-day April sun, should be chosen; or a box in a frame by those who have the convenience.

Salsafy and Scorzonera like a damp rich soil.

Bean-poles may be planted preparatory to sowing the Lima bean in May. Where bean-poles are scarce, two or three hoop-poles, set into the ground one from each other, and tied together at the top, make as good a pole, and perhaps better.

Dwarf beans should have very warm and deep soil—sow them only two inches apart. The Valentine is yet the best early, take it all in all.

Peas should be sown every two weeks for a succession—do not make the soil very rich for them.

Lettuce, for a second crop of salid, should be sown about the end of the month. The Drumhead cabbage is usually sown for a summer crop; but the old kinds of Cos lettuce would, no doubt, be found very valuable in rich soils.

COMMUNICATIONS.

CIRCULATION OF HOT WATER.

BY MR. THOS. WADDINGTON, STAPLETON, N. Y.

I have been much interested with the articles in your *Monthly* concerning boilers and the circulation of hot water. With your permission, Mr. Editor, I will give you my views of the theory of the circulation of water.

In the first place, I will say that my views differ from those who maintain that caloric or cold is the motive power. I maintain that a difference of specific gravity, and that difference of specific gravity alone, is the motive power in the circulation of water. Certainly heat and cold are the agents which produce this difference of specific gravity, but I cannot consider either of them to be a motive power.

Now for arguments in support of the theory that specific gravity is the motive power. Firstly, we will take an ordinary hot water boiler and pipes supplied with water, say at a temperature of 80°; we will now take a quantity of ice and place on the top of the boiler; here we shall soon have a circulation of water, but in a different direction to that which we should have had we placed caloric at the bottom of the boiler. Surely those who maintain that caloric is a motive power cannot maintain that caloric is the motive power in this instance.

Now I will relate another experiment. This morning I took a common half-pint flower pot and half filled it with water, at a temperature of 150°; I now took and filled it up with linseed oil, at a temperature of 28° or 4° below the freezing point; here Mr. Caloric would not move the cold oil, neither would Mr. Cold in the oil move the water. On taking my finger away from the hole in the bottom of the flower-pot, every particle of water passed through before the oil, as pure as when it was put in. We will now get a fresh supply of water and oil at the same temperature as before, but instead of putting water into the flower-pot first, we will put the oil in first. We will now place a piece of paper on the top of the oil, so that the water cannot displace the oil by its fall. We now pour the water in gently and remove the paper, and what is the result? The oil is immediately displaced. Now, in the former experiment neither heat nor cold would produce motion; but give specific gravity a chance, and how quickly it will prove its motive power. This experiment was sufficient to convince me that specific gravity was alone the motive power. If, Mr. Editor, you think this article worth your notice, you are at liberty to make what use of it you think proper.

SCENES AROUND BURRA BURRA, SOUTH AUSTRALIA, OCEANICA.

BY MR. W. T. HARDING, NONANTUM HILL NURSERY, BRIGHTON, MASS.

Perhaps no more pleasant recollections can possibly recur to the mind of the traveler, when his journeys are ended, than to dwell upon the past and call back to memory the eventful scenes he has passed through. Feeling it to be so, I am tempted to appear again before the readers of the *Monthly*, presuming that there are many

who peruse its pages with pleasure and profit too, and among them a few who may possibly be interested in reading the epistles of your correspondent, whose zig-zag wanderings in Occanica he endeavors to describe.

Having held a responsible government position in Australia for several years, it gave me an opportunity of seeing much of that wonderful and interesting country, which is destined, like the United States, to become a dwelling place for millions of the human family yet unborn. Resuming my erratic course again, imagine you see me at the Burra Burra copper mines in South Australia, measuring an immense Eucalyptus tree, one of the wonders of that really wonderful region, as you will admit when I mention the astounding figures which counted four hundred and forty-eight feet in length, and in circumference fifty-seven without the bark, as it lay near one of the openings of the subterranean caverns. If the "two solitary travelers" who recently explored the "Mammoth Cave" in Kentucky should ever explore the "Copper Caverns" I allude to, they would be well rewarded for their toil and trouble, I feel assured. There is nothing to compare with said mines (I was informed) elsewhere, in any part of the world.

I shall ever remember the astonishing scene when standing in one of the immense caverns glittering with bright copper, as the lights of the miners flashed among the glistening stalactitics that hung in every fantastic form imaginable from the vaulted roof, like fretted and burnished gold, mingled with splendid specimens of malachite. Emerging from the bowels of the earth again to the upper crust of the globe, I beheld nature clothed in rich garments of grandeur, unequalled by any similar scene, whose lasting beauties were enhanced by the most fragrant, delicate and lovely floral gems in the botanical kingdom. Hedera macrophylla, with its large, glossy green leaves, reminded me of the rare old plant, the Ivy green, as it grew finely up the sides of the miner's cottages with Disemma aurantiaca, a most remarkable climbing plant, mostly resembling a Passiflora. I first saw it in my young days at Chatsworth, when practicing under the celebrated horticulturist, the late Sir Joseph Paxton, and there became acquainted with its very peculiar character. It certainly merits the term of a "floral curiosity," from the fact of its flowers when budding being white, and as they continue to expand become buff colored, and when fully opened are a dark red. Here they were growing luxuriantly over the cottage roofs, and made excellent climbers, affording shade and shelter, both ornamental and useful.

The singularly beautiful and interesting Wonga Wonga Pigeons had found friends among the strangers who had settled there, and had become so tame and domesticated as to become household pets, and were fed and caressed by the miners and their families. I scarcely saw a cottage without a number of those innocent-looking creatures billing and cooing among the climbers on the roof.

In the neighborhood of the mines, and among huge and unshapely masses of copper, protruding through the surface of the earth, I found growing, and with scarcely any soil to root in, numbers of the bird's nest fern, Neottopteris vulgaris and N. stipulata; in fact, some of the finest specimens I ever saw of that curious fern were around here. I also observed them growing freely and flourishing in the auriferous deposits of gold dust and nuggets at Mount Alexander, Victoria. Here also seemed a favorable spot for the growth of Gompholobium, especially where several varieties grew and formed beautiful specimens. The genus is exceedingly pretty, and numbers some thirty varieties, and needs only to be seen to be admired. When under cultivation in the greenhouse, there are but few persons indeed, when examining them, either in or out of flower, but will exclaim, "How beautiful!" Whenever I met with them, they always engaged my attention, and were looked upon as objects of rare beauty, and as with the Ericas, when at the Cape of Good Hope, I felt as though I loved them. Even now, at this day, I doubt whether that quaint old English gentleman, Isaac Walton, could have felt more affectionately for his vermiculous pets, while impaling them for piscatorial pleasure, than I do for my floral ones.

Styphelia epacrioides, well-named, so like a crimson flowering Epacris and a very ornamental evergreen shrub, and generally growing to about eight feet high; S. lutiflora, equally handsome, with S. viridiflora of lower growth, and well covered with green colored flowers, formed pretty and well shaped bushes growing among the fragments of quartz rock, jagged lava and copper ore; with them Logania floribunda and L. ligustrina, two prim looking shrubs, bearing large clusters of white privet-like flowers. Grevillea Baureii a red flowering kind; G. sulphurea

a yellow variety, and G. coccinea a purple one, seemed to have taken possession of every crevice in the metallic rocks wherever there was a particle of earth to vegetate in.

Descending from the higher grounds to a "bosky dell" deep in the valley where multitudes of climbing plants festooned the Tristania and Acacia trees in endless varieties of foliage and flowers. Quietly meandering to a "babbling brook" which flowed through the bottom of the dingle, and following its serpentine course for some distance and admiring the diversified charms of nature, whose God has so clothed the silent glens in the richest garments of living green, gorgeously bespangled with flowers of every color and form; rambling on through such pleasant scenes of forest and field, and grottoes and cascades of sparkling water, so paradisaical seemed the spot, and just such a heaven as all good gardeners might wish to live in and enjoy forever the divine presence of Him who caused to grow every tree that is pleasant to the sight and good for food. Like the ancient Druids who worshipped beneath the umbrageous shades of "the brave old oak," I felt to be within nature's sanctuaries, where undisturbed the heart and soul may commune with the "Author of all good" within "the sacred groves." As I sat upon a bed of creeping plants, Fieldia Australis, much like a Begonia, and admiring the masses of Hardenbergias, Chorozemas, Zichias and Kennedyas, so beautifully mingled together and overhanging the stream, I was greatly surprised and delighted with a sight of one of the most extraordinary creatures in the animal kingdom, and is known to the naturalist as Ornithorhyncus paradoxa; as a paradox, nothing could be more absolutely so, real or imaginary, than this oddest of all oddities, which was but a few feet from me wading and swimming about the shallow stream, unconscious of powder and shot, and the danger that was lurking in a Purdie's double barreled piece near by. It would have been wanton cruelty to have harmed the poor thing. I let it go, and as I watched it pass by, thought of the fly "Uncle Toby" helped out of his wine, saying, "Go, poor devil, there is room enough for thee and me." Among the splendid specimens of Taxidermy preserved in the Academy of Natural Sciences in Philadelphia, may be seen a stuffed specimen of one, where any who are curious in such matters may examine. I need not refer your intelligent readers to works on natural history for more information, as many, no doubt, are better informed in such matters than your correspondent, but will simply describe it verbatim, in the language of one of the colonists, who called it a strange mongrel and a comical creature of the queerest kind, having three natures in one, namely, fish, flesh and fowl. It has the bill of a duck, lays eggs and hatches them in duck fashion, and suckles its young like a rabbit, and joined to the duck's head is an animal's body covered with fur, and for locomotion, in or out of the water, it has flippers or fins like a fish." His description was true to nature.

Adjacent to where I had been watching the Ornithorhyncus, grew some glorious specimens of the great Australian Lily, Doryanthus excelsa, whose beautiful creamy white flowers were blooming upon stems elevated upwards of twenty feet above the heads of their admiring beholders. Their appearance was regal, and as strikingly magnificent as any herbaceous plant I ever saw. Just think what an effect they would give to a flower garden or lawn planted as an objective group, with a bed of Cannas, one of Palms, another of Ricinus, one of the stately Musa ensete, and a number of other such like plants, having a subtropical appearance It occurs to me that in "the greatest Park in the world," I mean Fairmount Park, Philadelphia, it would be an excellent place for a display of such beautiful plants, where the public could see some of the magnificent growths of the tropics during the summer season. I have no doubt they would flourish if properly attended to by some intelligent man in that wonderful establishment. Explanation: I mean if there were some intelligent gentlemen who understood these matters, instead of mere designers of rustic "gimcracks," &c., and whose combined experience in landscape gardening, arboriculture, floriculture and horticulture in general are of somewhat higher order than now.

Chiloglottis diphylla, an ornamental terrestrial orchid, singularly furnished with only two leaves, from between which peeps a spike of curiously formed red flowers, very pretty, with Thomasia purpurea and T. foliosa, two handsome evergreen shrubs, very useful in collections where good things are appreciated, growing near by, were perfect mats of the beautiful and sweet-scented little Brunonia australis, whose refreshing aroma was pleasantly blended with another little evergreen, Agastachys odorata, whose fragrance filled the vale.

If the reader can only imagine a scene "where every prospect pleases," his ideas will carry him to the spot I am attempting to describe, for I admit my inability to portray as a master limner should, and at best am unskilled as an artist on canvas, or as a word-painter in the columns of the *Monthly*. So let fancy take flight and feast upon the beauties of a landscape, which, for romantic surroundings, would compare with any elysium the soul could long for or the body enjoy. It seemed to me more celestial than terrestrial—more heavenly than earthly. Grand old trees, mighty monarchs of the forest, massive and majestic, around whose ancient trunks has twined the tender and graceful Podolobium humifusum and P. scandens, and were modestly exhibiting their pretty yellow pea-shaped flowers, wreathed with the soft blue Sollyas above, like "streamers waving in the wind." Interspersed with numbers of handsome flowering trees and shrubs, were the Elichrysum bracteatum and E. incanum, two brilliant composite flowers, whose favorite habitats seemed to be among the craggy rocks and perpendicular cliffs so often met with in Australia. Frequently, and in similar positions, I noticed Calothamnus villosa, a splendid and showy scarlet flowering evergreen shrub.

Westringia Dampierii and W. rubiflora, two charming shrubs, profusely covered with pretty white and blue flowers, I saw, for the first time, in South Australia, but had seen it frequently in New South Wales, more especially around Moreton Bay and Wellington, New Zealand.

Conspicuously perched upon the ledges of a precipice, and standing out in bold relief, were some huge specimens of the Agave like Fourcroyœa, a very remarkable plant among the many curious and interesting kinds peculiar to New Holland. Less ostentatious, though not less beautiful than many of its congeners, was the lonely little Leschenaultia formosa, which brought back to memory some of those handsome specimens I remembered seeing at the famous Chiswick and Regent's Park exhibitions in London, in days gone by. It is several years since I had the pleasure of seeing the above named little gem, with L. biloba major, until I saw them at Mr. Robert Buist's, of Philadelphia, last spring. While engaged noting what I am now relating, I observed unusual numbers of Aborigines making their way through the valley in an easterly direction; singly and in groups, men and women were hastening through the "bush," like a gathering of clans to some appointed rendezvous. Returning to the rural hamlet of Burra Burra, and mentioning the fact to the superintendent of the mines,(whose guest I was during my stay in that vicinity,) who informed me that the natives were going to a "Corrobbery," about two miles above the valley's cascade, and kindly remarked if I should like to see it, he would accompany me there. Gladly I accepted his offer, pleased with the thought of witnessing a sight I had often desired. After supper, and a pleasant tete-a-tete with his family, we started with a party of friends to Wa Wa Wa, where the "Corrobbery" was usually held. The night was pleasant, with the temperature exceedingly agreeable and refreshing, after a rather hot day. We reached the meeting place of the blacks, at "the bewitching hour" when the moon was at her zenith, radiantly beaming in the centre of the celestial arch, and in the fullness of her heavenly glare, seemed to look placidly down upon the heathenish orgies taking place below. On an open and level space in the forest, the benighted savages had assembled to worship, *perhaps*, "the unknown God," but ostensibly the moon, as was their custom when the luminary was at the full. Whether it was homage, adoration or offerings of the heart, I know not, but it appeared to me more muscular or physical than devotional. Formed in a line of three deep, and with faces turned upwards, their fetich ceremonies began by making an upward movement with the right leg, and with a military procession, simultaneously raising the right arm, with the forefinger pointing out, gazed steadfastly at the moon; reversing the attitude from the right leg and arm, and rapidly changing from one to the other, they so continued the exercise like a dance of demons, until, bathed in prespiration and exhausted, they sprawled on the grass to rest, and when sufficiently recovered from the violent exertions, got up and took part in the diabolical performances again. While the males were thus engaged, the "lubras" or women sat beating time with sticks upon pieces of hollow wood, and so accompanying the *music* with a low monotonous chant "joined in the worship."

Applying the words of the wandering minstrel to myself, I can say,

"We have been up and down, both in country and town,
And many strange things we have seen,"

But nothing previous to compare with this, for in all complex phases of life, I never saw the

like before, and doubt if I ever shall again. Just think of the horde of grinning cannibals dancing and yelling at the moon, and whose savage-looking features were made more hideous still with streaks of pipe clay, which ornamentation was continued down to their knees, and had the effect of making them horribly ghastly. How they were dressed for such an important occasion your readers will naturally desire to know, and may feel astonished when informed that it was undoubtedly in "the *first* style of fashion," for nothing could be more primitive than the skin that covered them. In the language of the inspired writer, "they were naked, and were not ashamed." Deplorably disgusting as was the scene, I pitied the poor wretches, and thought of the Psalmist's question, "why do the heathen rage, and the people imagine a vain thing?" Looking at the unwomanly "*fair sex*," whose uncomely features, if possible, were more ugly than the baboon-like "*lords of creation*," it seemed hard to believe (with all due reserve for the sacred truths of Holy Writ,) they were "Mother Eve's *fair daughters*," or the males "men and brethren." I was recognized by two of the "moon-struck blacks," a man and woman, two proteges of the Government, but were incognito to me in their frightful disguises, until addressed as Mis-te Har-dee, I identified them as two noted consumers of Government rations, and who rejoiced in the cognomen of "Venus and Adonis."

Leaving the jabbering crowd furiously disputing about something we could not understand, and as we retraced our steps towards the mines, our guide pointed to the little church, half hidden among the trees, and asked us to enter the "God's acre," where, "sleeping the sleep that knows no waking," lay the weary travelers whom death had overtaken in the wilderness. Pointing to a flowery little mound beneath two Sterculia diversifolia trees, and inscribed upon the outside of the stringy bark tree, I read—"Mary, the wife of William Chauner, Superintendent of the Burra Burra Copper Mines, sleeps here." Although unknown to me, I felt a sad regret for Mary, who had journeyed so many thousands of miles to find a grave in the distant wilds of Australia. Near by were the resting places of others "who had ceased from their labors." I noticed at the head of one, a miner's pick and shovel fastened to a Casuarina tree. They were "the implements used by John Chapman, the first miner who died and was buried here," as a rude carving indicated. At another grave I read a more singular epitaph still, as follows: "Down at last, and thrown fairly, is Thomas Ilchester the champion wrestler in these parts, and one of the best men that ever left Old England; Death threw him; poor Tom was no match for him." The poor, honest and simple hearted Cornishmen, proud of the prowess of poor Tom, had recorded him as a hero, and in paying a tribute to his memory, had "emblazoned his name on the scroll of fame." Often have I read the out-pourings of grief for the beloved ones departed, carved upon splendid and elaborately-chased monuments of marble and granite; but for simple eloquence, I never read anything to surpass this, for it made such an impression at the time, especially the last line:

"Death threw him; poor Tom was no match for him."

FAIRMOUNT PARK.

BY A "LOOKER WHO SEES."

The sprightly remarks of a correspondent in the *Gardener's Monthly* for January have induced others to look into Fairmount Park, who have the satisfaction to discover several hundred plants of the Gordonia pubescens, some of which have evidently bloomed, and many more are growing for the delectation of our grandchildren. Some thousands of young Beech trees also appear to be doing their best to make protecting shade for the poets who may recite their odes at many future centennials of our national existence. Native Hollies and Cedars of Lebanon, not native, and the giant of Yo-Semite in miniature, were observed among the evergreens under cultivation. The Magnolia glauca is also to be seen, a few specimens that have borne their fragrant blossoms for many years, and large numbers, said to have been planted by the Park authorities, not yet in bloom, nor quite "twelve feet around the base." There was no opportunity of discovering whether the "lazy Park Guard" know a Dock from a Camellia, as none were seen growing near together. It is undoubtedly to be desired that not only the professional gardeners, but also the Engineers and the Guards, and all who are connected with the Park, should take an interest in plants. Possibly this may happen at a future day, as the Park Commission endeavor to aid all students

by granting permits for collecting scientific specimens to those who wish to engage in such laudable pursuits.

THE ORIGIN OF THE ISABELLA GRAPE —EARLY GRAPE CULTURISTS.

BY DR. WM. F. CHANNING, PROVIDENCE, R. I.

I wish to offer you for publication the following extracts from a letter written at my solicitation by George Gibbs, Esq., of New Haven, son of Col. George Gibbs, who was noted as a mineralogist and horticulturist fifty years ago:

"*To Dr. Wm. F. Channing, President of the Rhode Island Horticultural Society:*

"During the early years of my father's residence at Sunswick, Long Island, now called Ravenswood (there never having been a raven there, and the woods having been mostly cut down), a Mr. George Gibbs, of North Carolina, —no relation of his that we could ever find out, though the two became intimate personal friends,—came to the North and lived for some time at what was known as Parmentier's Garden, at Brooklyn. His wife, Mrs. Isabella Gibbs, brought with her cuttings from which the original vines in that nursery were grown, and whence the grape was disseminated over the country. It was, I imagine, a sporadic seedling. As you know, it has been, in the way of seedlings, the parent of a number of new forms, better or worse, as may be. The grape was known in my boyhood indifferently as the "Isabella" and the "Gibbs" grape. To that lady, the wife of George Gibbs, of North Carolina, and not to my mother, Mrs. Laura Wolcott Gibbs, of Sunswick, the introduction of that grape is due. The identity of their husbands' names has led to the mistake sometimes made, the more natural as my father was one of the first largely to experiment on grape cultivation in this country at the very same time.

"At his place at Sunswick he had about six acres devoted to the cultivation of fruit, vegetables, flowering-plants and shrubs. Having traveled extensively in Europe, he was enabled to import from different parts a great variety of vines, of which, among others, I remember the Tokay and other Hungarian and Italian grapes; and he was in the habit of sending at the pruning season quantities of cuttings to his correspondents in various parts of the United States. Owing to the fertility of the ground and its favorable exposure, most of these throve for some years, but the tenderer sorts were, during the winter, either buried or covered with straw. The European grapes, however, gradually died out or ceased to bear, with some exceptions; but I have since heard that certain varieties thus introduced have continued to exist, and have become wild in the Southern or Southwestern States.

"The Isabella and Catawba remained as staples. The others, both, I think, American —the Bland grape and the Blue Cartaga—I have not heard of for many years. The Bland, if I recollect right, was somewhat similar to the Catawba, possibly a variety.

I suppose you know all about the Scuppernong. We did not find it a profitable one, as it is very straggly, and occupies an enormous space.

"One thing we noticed with our own grapes, especially the American, and that was, that the Italian mode of culture on trellises or in trees, giving them all the shelter of their own foliage, was the best. Where the leaves were thinned out or they were cut down into canes, they did not thrive so well. The finest Isabella vine we had run up a horse-chestnut tree.

"Truly yours,

"GEORGE GIBBS."

I will, with your permission, add a few remarks suggested by the above letter.

The grape crop of the United States is already hardly exceeded in value by any other fruit crop. The commencement of American Viticulture dates from the introduction of the Isabella grape, and the attention thus drawn to our native species. It is to the wit and enterprise of a woman that we owe this first step in a great national industry.

It is very interesting to note that the observation was made more than forty years ago, as recorded above, that the Isabella and other American varieties throve best when allowed to climb the natural trellis of a tree. A striking illustration of this now familiar observation has recently come to my notice in the city of Providence, where an Isabella vine is supported partly on the south side of a house, and partly on a tree, the part on the tree always ripening first, and ripening also every year, which is remarkable in New England.

In the south of Europe olive orchards are planted for the special purpose of supporting

and sheltering the vines. The centre of each tree is trimmed out from above in the shape of a cup, open to the sun, but protected from the wind. The vine planted at the foot of every tree soon takes possession of this nook, and lines the cup with its foliage and fruit. Among the multitude of our shade, nut and fruit trees, there must be several which would substitute the olive in making orchard vineyards. A tree for this purpose should be a rapid-growing dwarf which will bear trimming into every shape. As an illustration, a peach-stone and long cutting after the French method, set together, would give a vine and a support, which last would be probably adequate to sustain the vine in all of its stages for a series of years, while a portion of other fruit might be obtained in addition to that of the vine. The dwarf chestnut fulfils many of the requisite conditions for a tree support.

Of the American species, the *Vitis Labrusca*, at least, appears to require the protection of other foliage besides its own. I have information of a single instance of an allied method of grape culture in Rhode Island. The vines are set on terraces or a hill-side, and the branches are trailed along the banks, the tall grass giving the required shelter. I have accidentally tested this method, and found branches which had strayed down a grass bank free from mildew and ripening their fruit well, while the vine supported on trellises above was extensively mildewed.

The extreme contrast to the training on trees is the low *souche* system of Russia, Germany, France and California, in which the vine is reduced in winter to a stump with half a dozen short arms, and in summer takes the form of a bush. This system reduces the labor of training to a minimum, and the stump in winter is easily covered, if necessary, with a few spadefulls of earth. The vine is protected in art by its low situation; it is easily sulphured, if diseased, and the fruit is easly picked. This system meets, therefore, some of our American wants, and deserves to be mentioned in connection with the orchard training.

It will be seen from the preceding letter that the European custom of thinning out the leaves of the vine in summer was early found to be unsuited to our climate and to the American grape. Much injury, however, is still done in this country by excessive summer pruning of the bearing canes and laterals, while the winter pruning is insufficiently performed.

WM. F. CHANNING.

Providence, R. I., Dec., 1871.

NOTES FROM IOWA.

BY MR. H. C. HOYT, MCGREGOR, IOWA.

PEAS — *Yorkshire Hero.* — This pea has proved to be the best I have ever tried for late; exceedingly productive, large size, sweet and delicious; I should say first class.

EGG-PLANT.—This vegetable with me often proves a failure. The last season, I tried the New Early Long Purple. They proved quite early, and very productive, maturing ten or fifteen fruit to the plant. Sowed seed April 5th; fit for table August 1st. Whenever the Colorado potato-bug puts in an appearance, look out for your egg-plants. If neglected, they will devour the young plants in a day. I protected mine with boxes having mosquito-netting over the top, until they were in bloom, and after that by picking off and killing the bugs daily until quite late in the season.

THE TROPHY TOMATO.—Raised this variety for the first time last season. Think it the Tomato of all others; very large, smooth, solid, productive, and of fine flavor. With me it proved as early as any. Sowed seeds of it and Hubbard's Curled Leaf (described by some as the earliest) in hot bed, April 5th. First *mess* of the Trophies ripe for the table, July 16th, while but one tomato of the other variety had ripened. Had plenty of ripe tomatoes for use of family right along after that date; while half-ripe ones, shipped from more southern locations, were selling in our market at from fifteen to twenty-five cents per pound. Trained one-half the plants of each kind to stakes; the rest lay on the ground. The only difference perceivable in the two modes was that the vines that lay on the ground continued longest in bearing.

I know that poultry is not in your line, but I will mention that last spring I had a black Spanish cock. In moulting he has changed to a pure white, even to his legs and feet. I don't think there is a black feather on him. Is it not an unusual occurrence?

HYBRID GRAPES.

BY MR GEORGE HASKELL, IPSWICH, MASS.

A year ago last summer I sent you an article on my hybrid grapes, and inquiring what I had

better do with them. In reply to that communication, I received offers from many horticulturists in different parts of the country—several of them men of eminence and national reputation—proposing to take care of all the vines I chose to commit to their hands for trial, and promising to report upon the progress of the vines annually, and to protect them from dissemination, so far as they could. I gave encouragement to most of these correspondents, that I would supply them with vines for trial another season. But on the representation and advice of gentlemen familiar with the arts of the nursery business, I was induced to retain them in my own hands until I ascertained their quality, and which were best, and which, if any, were worth propagating

I think it is well that I did not send out vines at that time, for two crops have ripened since then, and a careful and critical examination has led me to revise my list of the best twenty, to reject some that were then considered among the best, and to include others that have since come into fruit, or that have improved much with their advancing age.

Distrustful of myself in this proceeding—of sitting in judgment upon my own *progeny*—I called in a number of my townsmen - amateurs—who have in their gardens all the best and new out-door grapes, and who are very competent judges, to taste my grapes and examine them on the vines. I called their attention to twenty that I considered the best, but they found others on the trellises that they considered better than some I had included in the twenty. They were all agreed upon those which they considered the best *five* of the lot; and that three or four of them, having the Frontignan flavor, were decidedly superior to any out-door grape they knew of or had ever tasted. But they did not agree as to which was the *best* one. Three of them agreed upon one grape as the best, and the others selected others, each a different grape, as his individual first choice.

Perhaps the readers of the *Monthly* will believe that I have obtained some good grapes; but I have not determined what I shall do with them, if I do anything at all about introducing them. I am not a nurseryman, and do not desire to engage in that business. I thought it might be better for the originator, for the nurserymen and the public to give the originator of new plants the same kind of protection that is given to authors and inventors, and therefore prepared and sent out a circular asking the co-operation of those who were supposed to be most interested in the measure in obtaining such a law. So little encouragement was given by them to the project, and so much suspicion was cast upon the scheme and its author by the *Agriculturist* and other horticultural publications, that I almost regretted that I had done anything about it, or said anything about my experiments in obtaining good grapes. I resolved at once to abandon the scheme, though no objection was urged against it that did not apply with equal force to the patent and copyright laws.

I am still multiplying and diversifying my crosses, having now fifty seven crosses in all, and about a thousand hybrids, including two hundred and seventy-nine seedlings of this year's growth, which are all the progeny of nine second crosses with the foreign. A docket has been kept from the beginning—eleven years ago—in which is entered the characteristics, progress, health, &c., of every cross and every individual vine.

My interest and labor in these experiments do not depend upon any pecuniary reward; nor does the expenditure of time and money upon them give me any anxiety or discomfort. I shall pursue them further, though it may be only for my enjoyment and instruction in the laws of nature which govern this process, and shall obtain, eat and enjoy the "fruit of my labors."

[We never could understand the opposition some of our friends exhibit towards horticultural patents. The discoverer of a new fruit or of a new and valuable idea has the same right in horticulture to its benefit as in any other class of the community. There have been during the few past years claims for the sole use of ideas which were not new, and which interfered with rights which we have all enjoyed. Amongst these we now remember a claim for rooting grape-cuttings, and one for growing fruits in baskets. In these cases, we opposed them for other reasons than for any idea that real horticultural discoveries should not be well rewarded. Again, we have given no encouragement to patent laws for fruits, not because we think a fruit raiser should give his products to the public for nothing, but because no suggestion so far made seemed practical. But then comes the question, how is the zealous experimentor to get his due reward? When Mr. H.

wrote last year, his letter was given without any suggestion of our own, because we hoped that others would take up the subject. The article was widely reprinted from the *Gardener's Monthly*, but no practical suggestions, we believe, were made. We will venture an opinion here.

In reference to the subject, the only idea we ever heard broached was to send a few for trial to different parts of the Union to "honorable men." We have an illustration in our mind. A raiser of a new and very good thing asked advice what to do with it. It was represented to him that it had not been tried elsewhere, and the public would not value it much until more widely known. A party was named who probably would give a thousand dollars for the whole stock. If known, it might be worth more. He has spent many years, and been to much expense in the matter, and $1000 seemed low. He preferred to try the "honorable plan." One gentleman, instead of merely *testing* the plants, went heavily into the propagation, and before the originator had fairly got his new plant before the public, and before he had received back a tithe of the enormous expense he had been to in bringing it before the public, the friend was in the market at half price. He had been to no expense originating or advertising, and of course made a big thing out of his patron's confidence. He will not try this plan again. But Mr. Haskell himself shows how this plan will not work. The tastes differed even on his own grounds. They were as likely to do so if a thousand miles apart; and hence a dozen men's views would not amount to much. Indeed, we should much prefer to have only one judge; and if this one knew all about pomology before we were born, as Mr. Elliott would say, perhaps all the better.

But we should not advise any amateur to do even this. Our recommendation would be, when you think you have something good, submit it to enterprising men well known in the trade in the particular line of your discovery, and take for the whole stock the highest price offered you. This will be found far better than "running" it yourself, even with the aid of the best patent laws ever devised. If any of our readers have better advice to offer, our columns are cheerfully open to them ED.—]

ELIGIBLE TIMBER TREES.

BY FERD. VON MUELLER, MELBOURNE, AUS.

(*Continued.*)

II.—Miscellaneous Trees, Not Coniferous.

ACACIA ACUMINATA, Benth.

A kind of Myall from Western Australia, attaining a height of 40 feet

ACACIA DECURRENS, Willd. (*A. mollissima*, Willd. *A. dealbata*, Link.)

The Black Wattle or Silver Wattle. From the eastern part of S. Australia, through Victoria and N. S. Wales, to the southern part of Queensland, in open plains a small or middle sized tree, in deep forest recesses a lofty tree of singularly rapid growth. Its wood can be used for staves and many other purposes, but its chief use would be to afford the first shelter, in treeless localities, for raising forests. Its bark, rich in tannin, and its gum, not dissimilar to Gum Arabic, render this tree also important. Other quick-growing trees, useful in various ways, growing in any soil and enduring drought, can be used simultaneously, by mere dissemination, in ploughed ground, for dense temporary belts of shelter, or for quick yielding fuel plantations, such as *Acacia pycnantha*, *A. lophantha*, *Casuarina quadrivalvis*, *Casuarina suberosa*, *Eucalyptus melliodora*, *Eucalyptus viminalis*, and many other Eucalypts, all easily growing from seed.

ACACIA HOMALOPHYLLA, Cunn.

The Victorian Myall, extending into the deserts of N. S. Wales. The dark brown wood is much sought for turners' work on account of its solidity and fragrance; perhaps its most extensive use is in the manufacture of tobacco pipes. Never a tall tree.

ACACIA MELANOXYLON, R. Br.

The well-known Blackwood of our river flats and moist forest valleys, passing also under the inappropriate name of Lightwood. In irrigated valleys of deep soil the tree will attain a height of 80 feet, with a stem several feet in diameter. The wood is most valuable for furniture, railway carriages, boat-building, casks, billiard tables, pianofortes (for sound-boards and actions), and numerous other purposes. The fine-grained wood is cut into veneers. It takes a fine polish, and is considered equal to the best Walnut. Our best wood for bending under

steam. For further details refer to the volumes of the Exhibitions of 1862 and 1867.

ACER CAMPESTRE, L.

Extends from Middle Europe to North Asia. Height 40 feet, in shelter and deep soil; the yellow and purple tint of its foliage in autumn render the tree then particularly beautiful. The wood is compact and fine-grained, and sought for choice furniture. The tree can be trimmed for hedge growth. Comparatively quick of growth, and easily raised from seed. These remarks apply to almost all kinds of Maples.

ACER DASYCARPUM, Ehrhart.

The Silver Maple of North America. Likes rather a warmer climate than the other American Maples, and therefore particularly desirable for us here. Height 50 feet; wood pale and soft, stem sometimes 9 feet in diameter.

ACER MACROPHYLLUM, Pursh.

Large Oregon Maple. Tree 90 feet High, of quick growth; stem 16 feet in circumference; wood whitish, beautifully veined.

ACER NEGUNDO, L.

The Box Elder of North America. A tree, deciduous like the rest of the Maples; attains a height of about 50 feet, and is rich in saccharine sap. Proved well adapted for our country.

ACER PALMATUM, Thunb.

This beautiful tree with deeply cleft leaves is indigenous to Japan where various varieties with red and yellow tinged leaves occur. Should it be an aim to bring together all the kinds of Maples, which could be easily grown in appropriate spots of Victoria, then Japan alone would furnish 25 species.

ACER PLATANOIDES, L.

The Norway Maple, extending south to Switzerland, 70 feet high. The pale wood much used by cabinetmakers.

ACER PSEUDO-PLATANUS, L.

The Sycamore Maple or British Plane. Attains a height of over 100 feet. The wood is compact and firm, valuable for various implements, instruments and cabinet work. It furnishes, like some other Maples, a superior charcoal.

ACER RUBRUM, L.

The Red Maple, North America. A tree attaining 80 feet, fond of swampy places; wood close grained. The trunk when twisted furnishes also curled maple wood. Grows well with several other maples, even in dry open localities of this part of Australia, although the foliage may somewhat suffer from our hot winds.

ACER SACCHARINUM, Wang.*

One of the largest of the maples. In the colder latitudes of North America, 80 feet high. Wood of rosy tinge, when knotty or curly furnishes the Birdseye and curly Maplewood. In the depth of winter the trees, when tapped, will yield the saccharine fluid, which is so extensively converted into maple sugar, each tree yielding 2 to 4 lbs. a year. The trees can be tapped for very many years in succession, without injury. The Sugar Maple is rich in potash. Numerous other maples exist, among which as the tallest may be mentioned, *Acer Creticum*, L. of South Europe, 40 feet; *A. lævigatum*, *A. sterculiaceum and A. villosam*, Wallich, of Nepal, 50 feet; *A. pictum*, Thunb., of Japan, 30 feet.

ÆSCULUS HIPPOCASTANUM, L.

Indigenous to Central Asia. One of the most showy of deciduous trees, more particularly when during spring "it has reached the meridian of its glory, and stands forth in all the gorgeousness of leaves and blossoms." Height 60 feet. It will succeed in sandy soil on sheltered spots; the wood adapted for furniture; the seeds a food for various domestic animals; the bark a good tanning material. Three species occur in Japan, and several, but none of great height, in North America and South Asia.

AILANTUS GLANDULOSA, L.

S. E. Asia. A hardy deciduous tree, 60 feet high, of rather rapid growth, and of very imposing aspect in any landscape. Particularly valuable on account of its leaves, which afford food to a silkworm (*Bombyx Cynthia*), peculiar to this tree; wood pale yellow, of silky lustre when planed, and therefore valued for joiners' work. In South Europe planted for avenues.

ALNUS GLUTINOSA, Gaertn.

The ordinary Alder. Throughout Europe and extra tropical Asia, 70 feet high; well adapted for river banks; wood soft and light, turning red, furnishing one of the best charcoals for gunpowder; it is also durable under water, and adapted for turners and joiners' work. *A. incana* Willd. is an equally high and allied species.

AMYRIS TEREBINTHIFOLIA, Tenore.
Brazil. Is here perfectly hardy, and is content in dry ground without any irrigation. It proved one of the best among the smaller avenue trees, is beautifully spreading and umbrageous, and probably of medicinal vaiue.

ANGOPHORA INTERMEDIA, Cand.
South East Australia. This is the best of the Angophoras, attaining a height of 50 feet, and growing with the rapidity of an Eucalyptus, but being more close and shady in its foliage. It would be one of our best trees to line public roads, and to effect shelter plantations.

BALOGHIA LUCIDA, Endl. (*Codiæum lucidum*, J. M.)
East Australia. A middle sized tree. The sap from the vulnerated trunk forms, without any admixture, a beautiful red indelible pigment

BETULA ALBA, L.*
The ordinary Birch of Europe and extra-tropical Asia. It attains a height of 80 ft., and would here thrive best in moist glens of the ranges, or in the higher regions of our mountains, where it would form up at the Alpine Zone excellent shelter plantations. The durable bark serves for roofing. Wood white, turning red The oil of the bark is used in preparing the Russian leather.

BETULA NIGRA, L.
The Black or River Birch of North America. One of the tallest of Birches. If grown on the banks of a limpid stream, it will bear intense heat. The wood is compact, of a light color.

BETULA PAPYRACEA, Ait.
The Paper Birch of North America. A larger tree than *B. alba*, with a fine-grained wood and a tough bark; much used for portable canoes. It likes a cold situation.

BETULA LENTA, Willd.
The Cherry Birch of North America. A tree of middle size, liking moist ground. Bark aromatic. Wood rose-colored or dark, fine-grained, excellent for furniture. Several Birches occur in Japan, which might well be tried here.

CARPINUS BETULUS, L.
The Hornbeam. A tree of 80 feet high Middle and South Europe. Wood pale, of a horny toughness and hardness, close-grained, but not elastic. This tree would serve to arrest the progress of bushfires, if planted in copses or hedges like willows and poplars around forest plantations. A smaller species, Carpinus Americana, Mich., yields the Ironwood of North America. Four species occur in Japan (*C. cordata*, *C. erosa*, *D. laxiflora*, *C. japonica* (Blume). *Carpinus viminea* (Wallich) is a species with durable wood from the middle regions of Nepal. (20)

CARYA ALBA, Nuttall.*
The Shellbark Hickory. A deciduous tree, 90 feet high, which delights in rich forest soil; a native of North America. Wood strong, elastic, and tenacious, but not very durable. Yields the main supply of Hickory nuts. All the hickories are extensively used in North America for hoops. (21)

CARYA AMARA, Nuttall.
The Bitternut Tree or Swamp Hickory. A tree 80 feet high, in swampy grounds of North America. Wood less valuable than that of other Hickories.

CARYA GLABRA, Torrey.* (*Carya porcina*, Nuttall.)
The Hognut Tree. A tree 80 feet high in forest land of North America. Wood very tough; the heart-wood reddish or dark-colored; much used for axletrees and axle-handles

CARYA OLIVIFORMIS, Nuttall.*
The Pecan Nut Tree. A lofty tree, found of river banks in North America.

CARYA SULCATA, Nuttall.*
The Furrowed Hickory and Shellbark Hickory of some districts; also Shagbark Hickory. A tree, 80 feet high, in damp woods of North America. Heart-wood pale colored. Seed of sweet pleasant taste.

CARYA TOMENTOSA, Nuttall.*
The Mocker Nut tree or White Heart Hickory. A big tree of North America. Likes forest soil, not moist. Heart-wood pale-colored, remarkable for strength and durability. Seeds very oily. Nut small, but sweet. A variety produces nuts as large as an apple. (22)

---

[20] This is a very interesting fire hint. *C. Americana* we believe grows quite as large as *C. betulus*.

[21] For hoops also are maples and oaks extensively used.

[22] What kind of Apple? The *Carya alba* and *C. sulcata* sometimes produce fruit—not nuts—as large as small apples, and nuts as large as walnuts.

CASTANEA SATIVA, Miller.* (*C. vesca Gærtner.*)
The Sweet Chestnut Tree. South Europe and temperate Asia, as far as Japan, and a variety with smaller fruits extending to North America. It attains an enormous age; at Mount Etna an individual tree occurs with a stem 204 feet in circumference. The wood is light and coarse-grained; the importance of the tree rests on its adaptability for shade plantations, its nutritious nuts and timber value.

CASTANOPSIS ARGENTEA, A. Candolle,
A lofty tree in the mountains of India, produces also edible chestnuts. Other species of the genus Castanopsis are valuable.

CASUARINA GLAUCA, Sieber.
The Desert Sheoak, widely distributed through Australia, but nowhere in forest-like masses. This species attains, in favorable places, a height of 80 feet. Its hard durable wood is valuable. Important for its rapid growth, resistance to exposure for shelter plantation, and a speedy supply of fuel, a remark which applies also to the following species.

CASUARINA QUADRIVALVIS, Labillard.
The Coast Sheoak of South-east Australia, but not merely living in coast sand, but also on barren places up to the hills inland. Height to 60 feet. The male tree is very eligible for avenues, the foliage of the species being drooping. Cattle are fond of the foliage. For arresting the ingress of the coast sands by belts of timber, this is one of the most important trees. It produces, like other Casuarinas, seeds early and copiously, and is easily raised.

CASURINA SUBEROSA, Willd.
The Erect Sheoak of South East Australia. Height to 40 feet. A beautiful shady species, *Casuarina trichodon* (Miq.), *C. Fraseriana*, (Miq.), and *C. Huegeliana* (Miq), are arboreous species of South-west Australia, all valuable for their wood.

CEDRELA TAONA, Roxburgh.*
The Singapore Cedar. A mere variety of this is the Red Cedar of East Australia (*Cedrela Australis*, Cunn.) The light beautiful wood, easily worked and susceptible of high polish, is much in request for furniture, for the manufacture of pianofortes, for boat-building and a variety of other work. As this important tree is largely extirpated in the cedar brushes, it is highly desirable to form of it in our rich forest gullies independent plantations for future local supply. The Red Cedar is hardy at Melbourne, but in our open exposed gardens and poor soil of slow growth.

CELTIS AUSTRALIS, L.
The Lotus tree of South Europe and North Africa. Of longevity, 50 feet high, available for avenues. Berries edible. Wood hard and dense, eligible particularly for turners' and carvers' work.

CELTIS OCCIDENTALIS, L.
The Huckberry Tree. A fine forest tree in Ohio, and other parts of North America. Height 80 feet. The variety called *C. crassifolia* is the best. The sweet fruits edible. Wood elastic and fissile. (23)

CERATONIA SILIQUA, L.
The Carob tree of the Mediterranean region. It attains a height of 30 feet and resists drought well. Wood pale red. The saccharine pods, Algaroba or St. John's Bread, of value for domestic animals. The seeds germinate readily.

CINNAMOMUM CAMPHORA, Nees.*
The Camphor tree of China and Japan, attaining a height of about 40 feet. It endures the occasional frosts of Port Phillip, though the foliage will suffer. The wood, like all other parts of the tree, is pervaded by Camphor, hence resists the attack of insects.

CORYLUS COLURNA, L.
The Constantinople Nut tree, the tallest of Hazels, attaining 60 feet in height, of rather quick growth. This, as well as the European Hazel (*Corylus Avellana* L.) and the Japan Hazel (*C. heterophylla, Fischer*) might be grown for copses in our forest gullies.

CORYNOCARPUS LAEVIGATA, Forst.
The Karaka of New Zealand and the principal forest tree of the Chatham Islands, attaining the height of 60 feet. The wood is light, and used by the natives for canoes. The pulp of the fruit is edible. Cattle browse on the foliage. In rich humid soil the tree can be adopted for avenues.

DIOSPYROS VIRGINIANA, L.
The N. American Ebony or Parsimon. A tree 60 feet high. Wood very hard and blackish. The sweet variety yields a good table fruit.

---

[23] The sweet fruit, hence called sugar berry.

ENGELHARDTIA SPICATA, Blume.

The spurious Walnut tree of the mountains of Java and the Himalayas. It reaches a height of 200 feet.

EUCALYPTUS AMYGDALINA, Labill.

In our sheltered springy forest glens attaining not rarely a height of over 400 feet, there forming a smooth stem and broad leaves, producing also seedlings of a foliage different to the ordinary state of *Euc. amygdalina*, as occurs in more open country. This species or variety, which might be called *Eucalyptus regnans*, represents the loftiest tree in British territory, and ranks next to the *Sequoia Wellingtonia* in size anywhere on the globe. The wood is fissile, well adapted for shingles, rails, for house-building, for the keelson and planking of ships and other purposes. Labillardiere's name applies ill to any of the forms of this species. Seedlings raised on rather barren ground near Melbourne have shown the same amazing rapidity of growth as those of *Euc. globulus*; yet like those of *Euc. obliqua*, they are not so easily satisfied with any soil.

(*To be Continued.*)

ORCHIDS—NO. 3.

BY MR. JAMES TAPLIN, MANAGER TO MR. GEO. SUCH, SOUTH AMBOY, N. J.

ZYGOPETALUM CRINITUM.—This is one of the very old-fashioned plants frequently met with, growing with little care and attention among a general collection of stove-plants; and, without any care, it is seen to flower more or less each year. The flower being large, and also sweet-scented, it is a very desirable plant. The season for flowering is from October until Christmas, according as the plant is grown in a hot or cool house. The above plant is one of the best for growing in a cool house, that in a temperature of from 50° to 55° in winter, and it will take no harm a few degrees lower on very cold nights. I will here mention that none of the Orchid family should be placed in cold draughts, although many will do well in a cool, not cold, house, but when grown in a low temperature they require less water and more care in giving it. The water should also be at least 10° warmer than the average night temperature of the house plants are grown in. This is a safe rule in watering all Orchids.

The Zygopetalum, being evergreen, of large growth, and also, when in good health, making a large quantity of roots, requires liberal watching at all times. The proper soil is one-third rough peat, one-third rough fibrous loam, and one-third dry, rotten dung, with some coke, or charcoal and sand, mixed with it. Fill the pots or pans one-third full of coke, and then place some of the rough soil with the plant bulb just above the pot. Make soil firm. It need not be carried above the level of the pot. The proper time to re-pot is soon after flowering, but if treated well, large plants will not require fresh pots for several years; but top-dress instead with the same mixture of soil. We grow one large plant in pans twenty inches wide by ten deep, and they grow and flower well. Had fourteen spikes on one plant this season, a total of ninety-six flowers. This, of course, is nothing extraordinary for this free-blooming plant, but one plant was quite small three years ago.

In conclusion, I can safely recommend this plant to beginners in Orchid-growing, and also to lovers of winter-blooming plants generally.

EDITORIAL.

TRAVELING RECOLLECTIONS.

A few hours at Washington, recently, afforded us an opportunity of examining the Government grounds and gardens—a portion of our parish which has long been waiting for our inspection. These establishments are pretty widely known, as Washington is a sort of central place for travelers, and correspondents write from there to all sorts of papers in all parts of the world. Every one has heard of the Government grounds. Sometimes they are spoken of in terms of lavish praise, at other times they meet with unmerited criticism. The last statement is particularly true of the Botanic Garden. It is not at all uncommon to hear the remark that its only use is to furnish cut flowers for Congressmen,—fifteen

thousand a year for bouquets to officials! nothing more. There is little doubt but this garden will not compare with similar establishments in Europe. It is not a credit to the nation. It ought to be at least four times its present size, with a worthy appropriation to sustain it. But we mistake the signs of the times if this proper position among the botanic gardens of the world will not be accorded to it before many years. Art and science is more appreciated in Washington than it has been. The praises which have been accorded to our beautiful Capitol buildings, are beginning to tell on the national pride Americans feel that in this grand specimen of national architecture, they have something which commands universal admiration; and they will not fail to see that these public grounds are rendered still more unworthy by the very magnificence of the architecture about them. They may as well have credit for good grounds as good buildings, and they are too practical a people not to see the point.

But even with the present meagre appropriations and cramped facilities for doing a good botanical work, the intelligent looker-on will see much in the botanic garden and its management to admire and to approve. All has been done by its chief, Mr. W. R. Smith, that can be done with his means, and that little all has been done intelligently and well. A very large and excellent collection of rare trees and plants has been gathered together, and as large specimens grown of them as the accommodations will afford. Information about matters which one would have to take a voyage around the world to find out, can here be gathered together in a day; and not in the dead language of a library, but in the living eloquence of the plants themselves. It is pleasant to note that appreciation seems already being bestowed on the work which has been done here. Some better houses have already been erected,—and we are quite sure that when the public at large understands the value of works of this character, more legislative encouragement will follow.

As to the bouquet idea, it is a very childish objection. Plants, however valuable they may be, will have beautiful flowers and fragrant odors. But beauty and sweetness alike must fade,—and whether they shall pay their last respects to the earth which bore them on the spot where they grew, or shall be permitted to give a part of their joyous lives to the pleasures of others elsewhere before they finally depart, are questions which others besides captious newspaper correspondents can as readily decide.

With the thermometer at 8° above zero, and a keen cutting wind, out-door observations were not favorable; but it was quite apparent that the grounds were kept up with much neatness and care, and our brief visit gave us a very much more favorable impression of the value of the work done here than on the strength of newspaper correspondents we had carried to Washington with us. We have recently noted some fine specimens of *Libocedrus decurrens* and other rare evergreens in some parts of the country, but of some of these there are finer ones here. We should be very much indebted to Mr. Smith if he can give us the heights of some of them for publication.

The Smithsonian Institution and grounds present some salient points, both for praise and criticism. As for *points*, the building itself is an embodied illustration. There are probably few buildings in the world which can furnish more outline in proportion to the space enclosed. If this be consistent with the elements of beauty, then the building is an immense success; but on this question the witness sayeth not. To our mind, a more massive structure would have better consisted with the idea of learning. The rusty color of the walls seemed also to us an unfortunate choice—an unfortunate fossil dug out of the depths of the earth, and not the virescent growth of the living age. Fortunately nature is making haste to cover the dingy brown. Ivy has attached itself to many parts of the building,—some variegated and some green. May it soon succeed in laying with its loving hands the dirty looking wall low in the grave of oblivion!

The grounds at the Smithsonian were in the hands of Mr. Downing at the time of his death. The main plan was no doubt his, for the walks and drives are very well designed. The genius of a landscape gardener is nowhere so manifest as in his treatment of roads. The pretender is sure to make too many. Only the true mind sends them in the directions where they are exactly wanted,—beauty and utility perfectly combined,—neither more nor less.

The planting was a failure. It is more than likely that Downing's original plan was not fully or fairly executed. Little else than large growing trees are employed. It is all the same whether the space to be occupied was broad and expansive or of limited extent, the only varia-

tions made were in the quantities of similar classes of trees. Very few slow-growing trees or flowering shrubs were employed. The result is, that now, though less than twenty years have elapsed, the planting is found to be wrong, and workmen are engaged in transplanting trees hither and thither; so that in many a place where on the beautiful plan a neat thick clump was delineated in order to make the whole picture one great success, a single pine or other tree is left, which, as it grows up, and perhaps loses its lower branches, will totally change the character of the original design. It is the boast of the true landscape gardener that his art is a more difficult one than that of the picture-maker. It is said that he has to see far into the future what his work must be. When he grades and plants and gives it up to you completed, you are to take it on faith. It is to be something in the future, and he does not merely claim credit for what it is now. If this is landscape gardening, and the Smithsonian planting is to be measured by this rule, it is a failure, and we are sorry for it. Still the grounds have beauty,—much beauty,—far above the average of public grounds in this country, and we have little doubt in the summer season they must afford one of the most enjoyable places to the lover of taste.

The experimental garden and grounds of the Agricultural Department are under the charge of Mr. Wm. Saunders, as is well known. The former division is down in a hole, and in a position badly calculated to be of much profit in the way of experiments, except as advisory to the people of what not to do. As the gallows is sometimes defended on the ground of its awful warning, so, no doubt, was the reasoning in the mind of the brilliant genius who selected this spot for "experiments." Saunders must have had an awful time in ditching and draining, in backing and filling, before he was able to put much through this soil; yet some things are wonderful successes. The dwarf pears in grass are amongst these, though they are not wonderful perhaps to those who practice just such treatment as Mr. Saunders does, and these are not by any means uncommon now. They have been in grass for many years, and regularly top-dressed; the growth is remarkable, not only for vigor, but for evident healthiness. Perhaps somewhat of this beautiful appearance is due to the washes of the bark which the trees receive. He is a true believer in bark-washing, and so are we; he has no dread of "filling up the pores," and he is right. We never saw a tree in which the bark was washed—whitewashed if one pleases—that was not healthier than one which was not. Mr. Saunders' trees are not, however, white. There is a sooty and sulphury smell which betrays the ingredients mixed with the lime; all the branches except the weakest are washed. They not only grow, but bear handsomely.

In the houses are many plants of economic value, which are raised for public distribution. There were a large number of Quinine plants thriving very well. Grapes were being propagated in immense quantities for distribution to correspondents,—and here we may observe that the distribution of seeds and plants which excites the ire of so many, has at least two sides to it. We hear it said that this distribution injures nurserymen and seedsmen. Let people buy seeds and plant. Why not distribute hogs and sheep, putty and glass, silk and broad-cloth? And the reply is, there is no proof that any nursery or seed business has been injured. Complaints, when they are made, usually come from those who are wealthy in these pursuits. The fact that they increase in wealth is decisive that they are not injured. The plants and seeds are mostly of new varieties and usually distributed in far-away places, and amongst persons who would never buy; but the gift is a foundation of a taste which culminates in producing a regular purchaser of these things. In the case of seeds, the Government does not raise them, but purchases from seedsmen; hence the money is really in the seed trade. Moreover, the seeds or plants are rarely gifts, but recompenses to a large number of persons who work for the Government without pay, and can in no other way so well have their services rewarded. They take metereological observations, make reports, and in various ways render service for all they get. That there may be some abuses is likely,—that the principle is good, is truly believed. This is the reasoning, whether of full-weight or not it is not now our purpose to decide; but it is in accordance with our idea of fair play that both sides shall, in these columns, be fully heard.

The grounds of the Department of Agriculture are pretty extensive, and lay well for good effect. We cannot say that the idea of combining a botanical scientific arrangement with the popular effects of landscape gardening is a success. Mr. S. has, with much energy and enthu-

siasm, gathered together an excellent collection of trees and shrubs; but many are somewhat small, and exposed as these little things necessarily are to cold, cutting winds, the final landscape effects will not be apparent before the next century. Many will die, and will have to be replaced continually. We imagine it would have been better to have well protected the whole grounds with rapid-growing shelter trees, and then placed the trees and shrubs severally just wherever they would be best suited in soil, situation or aspect,—keeping, of course, those things which are similar as near together as possible. There have been some very handsome plant houses erected recently on these grounds, in one of which Mr. Saunders has put up the hot water pipes on the gravitating principle of hot water circulation, the advocacy of which brought out such a heavy conflict of opinion both in this country and in Europe. Here is the practical demonstration of the truth that hot water circulates simply because cold water is the heaviest. As here constructed, the hot water in the flow pipes and the colder water in the return pipes both run down hill, and there is no reason that we see why a house a *mile in length* may not be heated by one boiler and one set of pipes as readily on this principle, as one a few hundred feet on the present ascending plan. As we stood and looked at these pipes so beautifully and so effectively doing their work, the mystery seemed the more profound that so many of us should be so long befogged and befooled by an abstract theory, which the most common sense reflection ought to have taught better "Did you not know before that warm water would run down hill as well as cold water?" said the writer to a wondering looker on, wedded to the popular theories of hot-water circulation, "Y-e-s," was the reply, "but yet it seems to me that the prinple must be true, that heat ascends." He will, no doubt, go on in the old way; and we must content ourselves with the simple observation that if the Department of Agriculture had never done any thing else than to partially demonstrate the value of this principle in hot-water circulation, it would still "deserve well of the Republic." It is destined to stand side by side with Mr. Strong's excellent demonstration of the value of ascending air in hill-side houses. The one revolutionized hot-air houses as the other will hot water. Hereafter there will be two Meccas for greenhouse pilgrims,—for Washington will take rank in this respect with Boston.

SCRAPS AND QUERIES.

CUNDURANGO, the so-called cancer cure, has been thoroughly tried in the English hospitals, and been found of not the slighest value.

LISTS OF SHRUBS.—*Mrs. F. G, New Haven, Conn.*, inquires whether Scott's *Suburban Home Grounds* treats of shrubs. These are fully discussed. Besides the descriptions and uses in the body of the work, there are full lists of them at the end of the book, according as each kind or class may be adapted to special purposes.

APPLE STOCKS FOR CORDON TRAINING—*R. E. T., 90 Wall St., N. Y.*, writes:—"Will you have the goodness to inform me where the Paradise stock can be obtained for growing apple trees on the Cordon system? Mr. Robinson says the French Paradise is the only suitable stock; Mr. Thomas Rivers says the English Paradise. Here are two paths. Which one shall we follow? For it becomes me to pause at the opening of the two paths, (when such *savans* disagree) and ask you to point the way. Is there any other stock used for growing pears for Cordon, other than the quince, on which are grown our dwarf pears?"

[Mr. Robinson is probably speaking of France, Mr. Rivers in England. Even in that case we should judge these gentlemen would hardly be justified in speaking for a whole nation. In this country we often find that the soil of one location favors a stock which, fifty miles away in another soil, will not do so well.

The Paradise stocks of this country are chiefly if not wholly French, as the bulk of American trade is done with the Continent, and compara-

tively little with Great Britain. The few English Paradise which we have seen indicate a growth of about the same in our soils. The English is easily distinguished by a greater tendency to grow upright.

The Doucain is very largely sold for Paradise stock in many American nurseries, the term Doucain and "Dwarf" having become synonymous. The Doucain is a stronger grower than the Paradise, and is better calculated for American use than the Paradise. When worked they make specimens 10 or 15 feet high. The Paradise making but toys, three or four feet only. The "Dwarf" apple of most American nurseries are on Doucain stocks.

The Mountain Ash might do to "Cordonize" pears, but we have had no experience in this for this kind of pear training.]

NAMES OF PLANTS—*E. E. B., Dover, N. J.*, writes:—Please inform me, in the *Monthly*, of the proper name of the German Ivy, which has a yellow composite flower, and in some respects resembles the Mikania scandens (1). Will you also give me the proper name and family, of what is commonly called "Artillery" plant (or Chinese Lycopodium), dotted with minute red flowers, about the size of a pin's head (2).

[1. Senecio scandens. 2. Pilea muscosa.]

A MACHINE TO KILL GRASSHOPPERS.—While some of our friends were making merry at our suggestion to have light canvas winge spread out in advance of horses drawing a roller, in order to crush grasshoppers, the Utah people, to whom the grasshopper is no joke, took up the idea, and have make a success of it. A paper, now before us, describes the invention, and says:

"It is drawn by horses, and consists of a large apron, which picks up the insects as it is drawn forward. Behind the apron is a pair of rollers, driven by the carrying wheels, and whatever finds its way into the front of the machine is obliged to pass between these rollers."

So in regard to the potato bug. Mr. Le Baron told the writer, when in Illinois recently, that some one had invented a machine to catch these. A long nose, gradually widening, went under the vines. The bugs fell off with the disturbance, and are gathered into a pocket. This is not our idea any further than that some machine would undoubtedly do it. But the grasshopper trap is exactly as we suggested. It is better to try than to laugh at ideas.

PROTECTIVE DUTIES ON TREES AND PLANTS.—Every year, about this time, there is much agitation about this subject. It is one which concerns every person who has any interest in gardening, but one which agricultural and horticultural papers almost ignore. It is a question so much mixed up with politics, and politics the *Gardener's Monthly* at least tries to avoid. People will reason on almost any subject; but on a political question they simply dispute, each party striving for a party victory.

But there are some facts in this matter which seem clear without risk of offending those who listen. A Massachusetts correspondent sends us a communication, in which he states that manufacturers there who are active in demanding a duty of 50 or more per cent. on their own goods, are yet working for a repeal of the plant duty. But if we understand the law right, plants are duty free now to all except nurserymen. Nurserymen and seedsmen pay duties, but not amateurs. The foreign nurseryman or seedsman can sell direct to the American gentleman, but the American nurseryman or seedsman must pay 30 per cent. in gold for the privilege of doing so. Why this spite against the American trader we never knew. We protested with all our ability to the Congressional Committee against this when proposed a year ago, but it was of no avail.

Suppose the duties are repealed all together, and the commercial man and what ought to be his customer be then put on an equal footing, will the American nurseryman or seed-grower be able to pay the same high wages he now does and yet compete with the cheap labor of the seed farms of Europe? It was not easy for him to do so before the war, when labor was lower. The expense of working a nursery establishment is now just double what it was before that time, while the actual prices are just about the same. It is not to be expected that he can compete with them. He cannot do it. The question is then narrowed down to this, is it for the interest of the nation to break up these nursery establishments in order that the principle of buying in the cheapest market is to be carried out? Here we suppose we encroach on the domain of politics, and we shall leave to politics the answering of this question.

One thing, however, remains. Though the interior nurseries may be crushed and broken by the free European competition, those of us who live near the seaboard will be benefited pecuniari-

ly. If we cannot grow things ourselves, we can become agents and importers for European houses, in which the profits are as great as in home raising, as the business of the whole country thus passes through the hands of a few. It is a matter which concerns our large Eastern firms very little. They are safe either way. It is rather a question for the interior and the smaller firms, scattered all over the country, to decide.

There will always be some annoyance from tree duties, on account of the delay at the Custom House with these perishable goods. Generally, however, plants if well packed get through even with this delay. But even with this, it is still a question whether for this a principle which in some measure prevents the great pressure of cheap foreign labor on our tree-raisers and seed-growers should be abandoned. We do not pretend to decide this question, but merely to present the case as it appears to us.

To Inquirers.—We frequently hold over inquiries, as well as communications, for various reasons. If there be no immediate notice or reply, correspondents will not, therefore, think favors unacceptable. We rarely receive a line from any one that is not suggestive of some good idea, and the letters of our friends are always welcome, provided it is anything we can reply to or use in these columns for the benefit of others as well as one. We have no time to answer private letters, or we would gladly do so in many instances.

Doryanthes excelsa.—We noticed recently another specimen of this rare and beautiful plant coming into bloom in Mr. Sherwood's greenhouse. The second plant in two years.

The Profit of a Pear Tree.—A correspondent from Springfield, Mass., says he has a pear tree 15 years planted, which produced $165 worth of pears in 1870, and nearly the same in 1871

Hardiness of Swedish Juniper.—A correspondent says that near Boston the Swedish Juniper is found much more hardy than the Irish. We were not aware before that there was any difference.

Wild Celery.—Can any of our readers tell us what plant is the "Wild Celery" on which the canvasback ducks of Delaware are said to feed, and which is supposed to give their flesh the peculiar flavor so popular with epicures.

Pyracantha Hedges.—*J. R., Elizabethtown, Ky.*, says: "Will you give a description of the cultivation of the Pyracantha in the *Monthly*? It is desirable that our people should know more about this new hedge plant."

[The Pyracantha is not a new hedge plant. It has been known and in use in the South for many years, and proves to be one of the best, if not the best, for them. It is raised by cuttings taken off in the fall, and made into lengths of about nine inches. The next fall they are well rooted and fit to set out. This variety has scarlet berries, and a somewhat ragged growth, which requires shearing to make it formal enough to be consistent with neatness. It is not hardy in the North, and attempts to make hedges of it have failed in these high latitudes.

But a few years ago another variety was introduced from Germany by Parsons & Co., which is hardy—at least here in the Middle States, and how far North we do not know. This grows much denser and is far better adapted to hedge purposes than the Southern form. It needs no cutting back to make it thick, and hence, though it does not make as great an annual growth as the Osage Orange, it will make a protective hedge quite as soon. The berries are lighter in color than the other Pyracantha, and the plant is known as the *White-berried Pyracantha*, though the berries are not exactly white. A little trimming is useful to make a more perfect form, but it is not necessary in order to make a perfectly protective fence. It is easily raised from cuttings, and will, no doubt, soon become popular. We regard the introduction of it as an hedge plant by our New York friends as one of the eras in horticultural history.]

Where can Things be had?—We are overrun with letters inquiring where the trees, plants and flowers, noticed in our paper, are to be obtained. We very seldom know more than we tell. We tell all we know. Sometimes we suspect these inquiries come from persons associated some way with the plant noticed, and that the inquiry is to bring out a free advertisement for the party in question. We cannot do this. There are many honorable firms who pay for their advertising, and it is not fair to them to give others advertising for nothing. Those

who have things to sell must advertise for themselves. We shall in future insert inquiries where things may be had if such come to us; thos who have them must reply through our advertising columns.

PERSIAN WALNUT.—*B. Lawrence, Kansas.*—"Some of our nurserymen are distributing what they call the Persian Walnut. Is this different from the English?"

[There is no difference in the main between the English, Persian and Madeira nuts. They are all from *Juglans regia*. It is seldom that varieties are selected and perpetuated by grafting, as any of these nuts are "good enough;" but as they vary as other things do, possibly some have been selected and grafted, and sold as "Persian."]

YELLOWS IN THE PEACH.—*L. F., Portland, N. Y.*, writes: "Can you direct me where I may find trees of the Beatrice and Plowden peach? also the Early Miners, three varieties? I saw your statement of the Plowden; I much want it. I am engaged here and at St. Joe and Muskegon, Mich., in peach-growing.

"What do you think of the sick, contagious yellows? Can we ever get rid of the disease when once established in a section? Have had it here some fifteen years; have lost 30 or 40 acres of peach orchards, and now have 20 acres at St. Joe, Mich., where the yellows has commenced its ravages. Will we ever get rid of it here at the North, or must we go South to raise peaches?"

[In regard to the yellows in the peach we have little more to offer than we stated in the article in our January number. We there suggested it was owing to fungus at the roots, the effects of which pervaded the whole tree. Since then Dr. Taylor, the microscopist of the Agricultural Department at Washington, acting on our suggestion, has taken the inner bark of a stem of a yellowed peach tree, taken just above the ground and found it infested by a moniliform thread like fungus, as we supposed. When the season arrives for getting in the ground, he will go to the root of the thing.]

CHANGE OF FIRM AT DETROIT.—It will be seen by our advertising colums that the firm of Ferrand & Osborne, of Detroit, has dissolved. Mr. Osborne has hitherto been the capitalist of the concern, without knowing much of the management of the old business. But he is an energetic and respected citizen of the city, and, we understand, still hopes to make the nursery one of the most flourishing "institutions" of that flourishing place.

FAY'S EARLY PEACH—*Mr. Fay* says: "We do not yet understand how so good a peach can be a month earlier than Early York, and fancy there is yet something unexplained about this. So you say of the Plowden. Possibly the peach may have originated from the pits of Fay's Early, as you very nearly described my peach, except in time of ripening, but I produced 2 or 3 trees as early as you say the Plowden fruits on which I would ere this have made a fortune had it not been for the yellows destroying the trees, so as to prevent the dissemination of the varieties, having only let out of my possession the Fay's Early, which was wrongly named Fay's Early Anne, by Col. Hodge of Buffalo. The Colonel said to me that it was a great mistake in putting the name Early Anne, on so good a peach that in no sense resembled the Early Anne.

"I have been aware that just such a peach as you mention would be produced but for the *yellows*. Such a peach as early and as good as you say the Plowden to be would have been in market ere this. For the last ten years, could I have known where the man was to which I could confide a secret by which to have brought out such a peach somewhere in the South where trees bear young and grow quick, and no yellows, I would have gladly made the effort."

[Mr. Fay's note unconsciously suggests to us that possibly the extra earliness of some trees may be owing to disease. We should be very glad to know from any correspondent who has had certain knowledge of the fact, whether a tree once healthy and afterwards suffering from the yellows will have the fruit ripen earlier on this account. We believe it would; but we want the direct evidence of some one who has had several years of close experience in this.]

TREES OF THE ROCKY MOUNTAINS.—Dr. Warder, of the Editorial Excursion of last year, contributes a very interesting paper to the *Horticulturist*, but errs in classing *Pinus Banksiana* among them. This does not grow so far south. It should have been *Pinus contorta*. We had no time to examine specimens critically on the way, and we did not discover this error till our return.

RAISING PALMS FROM SEED.—*J. S. McC., Galesburg, Ill.*, writes: "Will you please give directions in your next number, how best to raise palms (*Chamerops*) from seed, and oblige many of your readers?"

[They are very easily raised; indeed, require nothing more than to be put into a pot of any common garden earth, and kept in a temperature *not below* 70°. This last is the only essential point.]

SUMMER BUD-GRAFTING PEARS—*A Central New York correspondent* says: "Having a block of Pear seedlings that bid fair to leaf-blight very early, and before buds are ripe, we thought of trying a plan proposed by some one, of cutting scions now and keeping them in ice till June, and then using them for buds. Is it practicable? Have you ever tried it, or heard of its being tried?"

[In an early number of the *Gardener's Monthly*, this plan was described as having been practiced with great success with pears on quinces and cherries on Maheleb. The scions taken off in winter are buried in open ground till June, when they keep green and fresh without bursting their buds. Then the buds are taken out and used as if in the way of ordinary budding The success is complete, but the buds almost immediately pushed, and a late growth resulted. Possibly, if the stock were at once headed back, a growth almost equal to a spring graft might result, but on this we have no evidence. In the case of the pear, possibly this late growth might leaf-blight also]

DOUBLE PEACH-STONES.—*T. M. Somerville, Ky.*, sends us a drawing of a twin peach—the fruit from one flower joined together by the two edges opposite to the suture. It strikes us that these are occasionally seen, but we did not know that the stones in these cores were twin as the peaches are. The drawing represents them united in just about the same proportion as the flesh which covered them.

VICK'S CHROMO—We have hanging on our wall the new chromo issued by Mr. Vick, beautifully framed in walnut, which tells a pretty story of nice flowers for 1872. Last year Mr. Vick had Lilium auratum for the striking feature of the group. There is a Lilium of another variety this year, with the addition of Tritoma uvaria, now so popular. These are well supported by a score of other beautiful things.

GRAFTING ELMS.—*D. T. K., Rock Island*, inquires for the stock best suited to graft the Scampson and other weeping varieties. In the trade they are usually imported, and are on the English *Ulmus campestre*, but in the absence of direct knowledge, may say we believe they would do as well on any American species.

ABOUT RYE GRASS.—*A Richmond, Va., correspondent* writes: "Flint's book tells about Italian rye and Perennial rye grasses Thorburn sends us English rye. What is that? Then we find in some of the catalogues 'French Ray Grass.' And we have growing in some sections of this State a grass called Peruvian grass, which we think must be one or the other of these. Do you know anything of these latter, which are not mentioned in Flint? How much of the rye grasses is usually sowa to the acre? And is spring or fall sowing preferable? There are quite a number of well to-do English settlers recently located in our section, and we have frequent inquiries from them about these grasses, and also about tares and vetches."

[Rye grass, from its rye-like heads, is *Lolium perenne*. Italian rye grass is *Lolium Italicum*. The former is also English rye grass "Ray" grass is an unmeaning corruption. English or perennial rye grass is used for hay, or permanent pastures. Italian is not durable, and is popular in Europe for mowing for fodder in the same way that tares or vetches are. Our country is too hot for these, however, as also for Italian rye grass. They do not bear half the weight per acre as they do there. For hay, also, rye grass will not bear near as much per acre as Timothy, and your English friends will come over to the American choice. Rye grass, however, makes an earlier pasture than Timothy. It is one of the first to "green up" after winter—equal in this respect to orchard grass, and probably more nutritious. It is valued as an ingredient in lawn grasses on account of its early shining green.

What is called the Peruvian grass in Virginia we do not know. Do any of our readers?]

LOSSES BY FIRE have been rather numerous this winter. Willson's "Cottage Garden," at Xenia, Ohio, is one of the latest to go—dwelling-house and greenhouses. We have no doubt

many of these accidents occur through not heeding the lessons taught in the *Gardener's Monthly*, that *heat* as well as *flame* burns. No wood, especially enclosed wood, should be in a hot place. We have seen wood in greenhouses fire up when *fifty* feet from flame.

GRAMMATICAL.—*A. G., Cambridge, Mass.*, says: "*Shall* I be pardoned if I suggest to Washington correspondent (see p. 54) that 'Will I be pardoned' is not good English, though this use of *will* for *shall* is becoming common."

THE SANDRINGHAM WHITE CELERY is a variety raised by the gardener to the Prince of Wales, and is said to be the peculiar delight of his Royal Highness.

CANADIAN WONDER is the name of a new dwarf bean, which is said to be wonderfully productive. The pods in England grow straight, and over a foot long.

NEW AND RARE FRUITS.

BRANDYWINE RASPBERRY.—*W. T. B., Hammonton, N. J.*, says: "One of your correspondents inquires about Brandywine Raspberry; the 'Susqueco,' which was advertised in the *Gardener's Monthly* two or three years since, I think, by a Delaware nurseryman (I cannot recall his name), is the same, Susqueco' being the Indian name for the Brandywine. Mr Hoopes told me at Herstine's last summer, that he considered it same as Pearl, and that the Delaware man who sent it out did not consider it a new variety, but that it did well with him, and not knowing what it was, concluded to call it Susqueco until he could ascertain what it was. Mr. Hoopes can doubtless give you full information about it."

MADRESFIELD COURT GRAPE.—I have with a friend of mine to day (January 23d) cut the last bunch of this variety, and from what I now see it has fully borne out the character given to it by the Royal Horticultural Society. S. Simpson, Esq., of Manchester, a very good judge of Grapes, assured me a few days ago that a bunch I gave him, after hanging in a dry place, but still moderate in temperature, was kept five or six weeks amongst other thin-skinned varieties, and at the end could not be surpassed in flavor. I have it very fine in color, with large berries. I am very sorry that I have not more of it on account of its excellent quality. I am devoting a house, about 40 feet by 18 feet, to its cultivation. The constitution is good, and I have no hesitation in saying it is a very desirable variety to grow.—Joseph Meredith in *Journal of Horticulture.*

ROYAL ANNE CHERRY.—In the *Rural New Yorker* of this week you ask if this cherry is known by any other name. I can say we saw it in great perfection at the large fruit farm of E. D. Lewelling, San Lorenzo, Cal.' It is the same as our Napoleon Bigarreau. They had sent fruit of it to market the day of our visit there—June 28, 1870—that measured three and three-quarters of an inch in circumference, and thirty-six weighed a pound. Black Tartarian and other varieties were equally fine. We found the names of fruits at all the orchards we visited correctly stated, and this cherry is the only instance I recollect of where it was not.—Chas. Downing, in *Rural New Yorker.*

CALDWALDER'S GOLDEN APPLE.—Fruit average; weight 8 to 10 ounces; form round, compressed, oblique, truncated; skin bright golden yellow, with a faint blush; dots elevated, scattered, conspicuous, medium, irregular, dark brown; stem medium to long, slender; cavity wide, abrupt, deep, russeted eye, medium open; basin wide, abrupt, deep, slightly furrowed; core medium, slightly open; carpels rather large; seeds small, ovate, dark brown; flesh yellowish white, tender, juicy, mild pleasant acid; quality quite good; use market, kitchen; season November to March.

This apple originated on the farm of James Simmons, near Greenbush, Warren, Illinois, a few years ago. We are well acquainted with the locality of this place, having lived in the neighborhood many years. Any apple which will succeed well in that locality may be considered hardy. It is a very handsome, attractive

apple, strong open grower, a very early and abundant bearer, and said to be free from blight. It strikes root as freely from the scions as the graft.

Mr. James Simmons has planted out from sprouts coming up around the seedling tree, until he has now about four hundred trees of this variety in bearing. He says of it: "I have apples when my neighbors have any, and sometimes I have when they have none. They come to my orchard to get apples to dry when they have apples in their own orchard. I use this fruit for sauce and pies for harvest. I have them for my fall fruit. and I put them away for winter"

We find since writing the above description, that the apples improve much in quality later in the season, by samples just received, and also become richer in color, and more attractive.—*Western Pomologist and Gardener.*

COOPER'S RED APPLE.—A very handsome variety, originated by Mark A. Cooper, Esq., of Cass County, Ga.

Fruit medium, conical, very regularly shaped, skin deep carmine red with numerous small white dots, calyx closed in a shallow corrugated basin, stalk slender, set in a deep but narrow cavity, flesh crisped, brittle, sweet, quality good, maturity January, and from all appearance will prove a good keeper. Doubtless an offspring of Shockley, with which it has several points of analogy—*Farmer and Gardener.*

THE MERCER APPLE.—The history of the apple as far as known is this: Jeremiah Smith, one of the first and most successful fruit-raisers in Pike Co., Miss., obtained grafts of it from a Baptist minister, by the name of Mercer, about fifty years ago, hence the name. Proving to be a valuable apple, it has been cultivated on all kinds of soil with uniform success where any other variety would succeed

The tree is a very thrifty, strong grower, neither too dense nor too open, inclining to pyramidal in shape, and bears young, abundant, and regular crops

The apple is above medium size, varying from flat to conical; skin thin, yellow, with pale red streaks in the shade, in the sun, almost red; flesh fine-grained, white, and a peculiarly rich sub-acid flavor.

Time of ripening, all the month of July. Indispensable in any collection of apples.—H. W. L. Lewis, in *Southern Gardener.*

THE GROS COLMAN GRAPE.—M Vibert, then residing at Angers, sent me this grape some twenty years since. It bore abundantly with me, but did not ripen its fruit, being in a cold house. I have since seen it in fine perfection with Mr. Miller, of Bishop, Stortford. Its berries were so fine in size and color as to command a high price, making 9s a pound, while Black Hamburgh and Muscat of Alexandria made 7s a pound. Fully ripe its flavor is very rich, but when not so its flavor is not good; it keeps well, and requires to be "dead ripe." I send three or four berries; they were ripe in July. It seems as if it would be valuable as a market grape from its large size, fine color and keeping quality.—THOS. RIVERS.

[The Gros Colman has now been grown for some years in many gardens with varied success. In some places it colors badly, its substance is hard and fleshy, and its flavor is that of a grape, and nothing more. The fruit Mr. Rivers has sent is jet black, the substance tender and melting as a Black Hamburgh, and the flavor richer than that of any late black grape we know.]—*Journal of Horticulture.*

NEW AND RARE PLANTS.

GARRYA ELLIPTICA.—A correspondent from San Francisco suggests that this would no doubt prove a popular plant in Eastern gardens if found quite hardy. At San Francisco "it is the first herald of the new year. Its silken tassels come out in July or February, contrasting well with its dark evergreen foliage."

LEPTOSYNE GIGANTEA, Kellogg.—In a recent number of the Proceedings of the California Academy of Sciences we note this new plant described, and we judge it is one well worthy of culture as an ornamental leaf plant for the open ground. It is a plant of the aster or composite family. It is a perennial with a woody stem

rising about ten feet high. The growth is so rapid, Dr. K. says, that the concentric annual growth is often half an inch thick. The branches thicken at the ends like clubs. The plant seems full grown at 10 feet high. In blossom it is said to be surmounted with a broad canopy of golden flowers of great magnificence and beauty, giving off a honeycomb fragrance perfectly delightful. It was discovered at Santa Barbara, about 40 miles from the coast, by Mr. G. W. Harford, under Captain Forney, of the U. S. Coast Survey.

NEW ŒNOTHERA FROM UTAH.—As is their custom at the opening of the new year, our contemporaries of the horticultural press have in recent issues placed before their readers elaborate notices of our gains in the way of new plants, fruit and vegetables during the past year—all very exhaustive, no doubt; but yet we looked in vain among their notes for any allusion to a charming novelty whose acquaintance we made last year, and which, we submit, has strong claims to be regarded as A1 among the cream of hardy flowering plants We allude to a new dwarf Œnothera, from Utah, which we saw in flower at Glasnevin last year, and for the introduction of which, as of so many other choice plants, we are indebted to Dr. Moore. Calling at the gardens one evening last summer, while walking around with Dr. Moore, he asked "had we seen the new Œnothera?" Being answered in the negative, he led the way to the lock-up garden or sanctum, where one is sure at all times to meet something new, very rare, or of much botanical interest. On this occasion, however, all else was forgotten in admiration of the lovely little transatlantic gem to which Dr. Moore introduced us Looked at in the quiet stillness and shadows of a summer evening's close, with its circlet of large pure white flowers, raised vertically above the foliage, on long, slender tubes, and expanding their broad, fair bosom to the cooling moonbeams, this lovely plant presented an appearance altogether unique and striking.

This plant is altogether unique amongst its congeners as regards habit and appearance. The best of the latter, as for instance, Œ. missourensis, Œ. Lamarckiana, &c., though showy as regards flowers, are of a gawky, straggling habit, which detracts much from their value. The plant to which we now direct attention is just the opposite, being single-stemmed, compact and dwarf, flowering when not more than six inches high, and at the end of the season rarely doubling that height. But to come to particulars. The stem is short, stout, some eight or ten inches high; the leaves runcinate, having long foot-stalks, which, together with the midrib, in the lower leaves are white, in the upper red or pinkish. Commencing at the base, the flowers issue in long succession from the axle of the leaves, and are elevated vertically over remarkably slender tubes, fully a span in length, in a way to produce a beautiful effect. The flowers, as compared with the plant, are of great size, pure white, the limb of the corolla consisting of four very large obcordate petals, at the base of which the anthers are placed, round the mouth of the tube, which here expands considerably, and is of a greenish yellow color. The stigma is cruciform and considerably exerted. The above description, we are quits aware, is very imperfect, and conveys a still more imperfect idea of this fine flower. As yet, as far as we are aware, this Œnothera is without a specific name. It comes from the State of Utah, North America, and was communicated to Dr. Moore by his friend M. Roezl, of Zurich. When we saw the plant at Glasnevin it promised to seed freely, and we hope ere long to see it widely distributed, and taking a prominent position in the choice herbaceous border, or cutting a figure in some phase of subtropical gardening, for which its dwarf habit and exotic appearance seem to render it eminently suitable. —*Irish Farmers' Gazette.*

PRIMULA JAPONICA (NEW CRIMSON PRIMROSE).—The *Florist* says of it: "Hail! Queen of the Primroses! for so its introducer designates the lovely flower we now figure, which is hardy as a peasant, resplendent as a princess. It is just ten years since Mr. Fortune met with it in Japan; some plants were secured, but the journey home was too much for them, and despite every care none reached England alive. Ever since that time endeavors have been made to introduce this lovely plant. At last, perseverance has been rewarded, and plants have been raised in the establishment of Mr. W. Bull, of Chelsea. Our gardens have thus secured a perfectly new, thoroughly hardy and exquisitely lovely Primrose, one which is really valuable. Of the hardiness of the Primula japonica there can be no doubt, for plants have stood all the winter, fully exposed, in the trying atmosphere of London."

The *Floral Magazine* remarks: "Since the day when Lilium auratum was displayed to the horticultural public, we cannot recollect so great a sensation to have been occasioned by any plant as by that which we now figure, when Mr. William Bull exhibited it, and he may well congratulate himself on being the first to introduce it into Europe. A Primula a foot and a half high, bearing four or five separate whorls of flowers, each flower an inch in diameter, and of a splendid magenta color, and the plant perfectly hardy—can anything be added to this to indicate its value?"

PRIMULA JAPONICA.—Thinking that it will interest your readers to learn something of the habit and growth of this magnificent Primula, we forward you a few extracts from letters received from Mr. Kramer, of Yokohama, Japan, who has at various times forwarded to us seeds and plants of this species.

He writes as follows: "If the drawings in the European periodicals are true, Primula japonica must be very much finer at home than it ever is seen here. A cold climate and good cultivation have no doubt great influence, for its native country is said to be the island of Yeza. It is generally found growing on the banks of streams and watercourses in yellow loam. I have seen it growing from 2½ to 3 feet high with six or seven tiers of flowers—a magnificent sight.

"In sowing the seed it is very important to know, that as this Primula is not a native of a warm country, it requires no artificial heat for germinating, and that frequently the seed does not germinate until next spring, in fact the latter is the rule. I would, therefore, advise that the seed should be sown immediately, and left for at least six months undisturbed." (June, 1870).—"I have now some boxes which have stood for two years, and this year there are more plants coming up than even the first year" (May, 1871).

From this it appears that the seed takes a long time to germinate.

A moist yellow loam is best suited to the plant, and it is likely to improve much under cultivation. It will also prove especially valuable for hybridization on account of its tendency to vary.—Teutschell & Co., *Colchester, in Journal of Horticulture.*

QUERCUS DURANDII, DURAND'S OAK.—This is a rare species of oak, confined to the Southern States, having as yet only been found in Alabama, Louisiana and Texas. The bark of the trunk, and also of its limbs, resembles that of white oak somewhat, but is more scaly. The leaves of Durand's oak are broadly lanceolate, some of them slightly lobed and others entire, and widened out towards their top ends, or, in the language of the botanists, repand. Its leaves are deciduous. Its acorns are small, ovate, obtuse, the upper portion being often largest, cup very shallow, about one eighth as long as the acorn.

We first saw this oak growing in Wilcox county, Alabama, in low, rich soil, near streams and in swamps, rarely being more than three feet in diameter and sixty feet high. Its wood is close-grained and very tough, making excellent screws for cotton gins, for which it is used whenever it can be found large enough in Alabama. In Texas it is used for wagon hubs and also for basket splints. In this State, it is sometimes called the basket oak, and also called the bastard oak.

In the autumn of 1859, we saw large trees of this oak at Shreveport, in Louisiana, in the upper part of the town, on the bluffs of the banks of the Red river. These trees were about thirty feet high, with large, non spreading tops, composed of numerous rather slender branches. Its branches and twigs are smaller and more slender than those of the post oak. The color of its bark is light gray, similar to that of the post and also the white oak, but the above characteristics are sufficient to distinguish it from either of the oaks, nor is it ever confounded with these by the people living in the regions where it grows.

We have been thus particular in describing Durand's oak, because it has not yet been described in our botanical school books, and was only first described by us in the proceedings of the Academy of Natural Sciences of Philadelphia, in 1860

The oaks of the United States are too little known, and too little cultivated either for use or ornament. England has but two or three species of native oaks, neither of which are equal in beauty nor majesty to several of our species, yet the English oaks form part of the history of that country, and also have a prominent place in its literature, and are even cultivated in that country, while our superior native species are comparatively neglected.—S. B. Buckley, in *Southern Gardener.*

DOMESTIC INTELLIGENCE.

FOREST AND TIMBER-TREE CULTURE. — We have devoted a great deal of space in the *Horticulturist* of late to the subject of Forest and Timber-tree Culture, with the hope of having the matter thoroughly discussed, thereby enabling the members of our present Legislature to take the matter in hand properly, by collecting and condensing data and arguments on this most important subject, so that they may frame some law which will meet all the requirements.

The merits of forest and timber-trees have been discussed fairly and sensibly by our agricultural papers. The *California Farmer* of the 18th of January has argued the matter ably; and the *Rural Press* has made many valuable suggestions in one of its late numbers, which we to a great extent endorse.

We do not propose to say anything now in relation to the evils attendant on forest destruction, nor upon the favorable influences of trees; these facts are pretty well impressed on the minds of our intelligent farmers. But we wish to devote some little space to the practicability of the proposed or a similar measure to that which now lies before our Legislature for consideration.

As we hoped and expected, there is every prospect that the bill proposed by Senator Betge will undergo some very important changes, and we understand that it is proposed to form a Forest Board, similar to the plan suggested by the *Rural Press* and the delegation of the Horticultural Society. As suitable Commissioners for such a Board, the *Rural Press* suggests the Governor of the State, the President of the State Agricultural Society, John Bidwell, of Butte county, and E. D. Lewelling, of Alameda county — all capital men; but if permitted, we would propose one or two more: Professor Bolander, President of the Horticultural Society, who is thoroughly posted on the nature and usefulness of our California trees, and who would do all in his power to promote the object, being much in favor of tree culture; and we would also add Leland Sanford, who, as we understand, is very much in favor of tree-culture, and may do much good in facilitating the transportation of trees from one place to another, understanding and fully appreciating the desirability and the benefits to be derived from forest and timber-tree culture.

Now, if the Legislature will give us a Forest Commission composed of these men, or any desirable number of them, we entertain no doubt that the people will feel assured, as far as the expenditure of money is concerned in connection with this measure.

We understand that the amount of money proposed to be appropriated in the original bill will be considerably reduced; and we are in favor of this action, as the enterprise will have to be considered as an experiment until we have seen some of its practical results. But we think the State can well afford to devote the sum of $7000 or $8000 per annum to this experiment, as it must necessarily result in some good.

Should the proposed bill become law, much of the success of tree-culture will depend upon the judicious appointment of the man who will be entrusted with the carrying out of the provisions of it. Our personal acquaintance with many horticultural men enables us to state that there are men among us who are well qualified for the position, and we have the utmost confidence that such men as we have named above will select the very best man for the office.

The aforesaid bill proposes that the seeds of different trees should be distributed, accompanied by circulars instructing in the proper mode of treatment, etc. If, however, this was left to the discretion of the Forest Board, a large number of young seedlings, of from three to six inches, could be obtained within one year for general distribution; but we would urge the raising of these seedlings from seeds collected or otherwise obtained, and we object very much to the gathering young trees from the forests, which would require much more care, and especially as we know from experience, that from one-half to three-fourths of them would perish. There are some which may be readily transplanted from the forests, such as the *Libocedrus decurrens*, but most of the Coniferæ tribes do better if transplanted in nursery rows, for

reasons which we cannot explain here. As to the cost of furnishing such young seedlings, we beg to differ from the statements of Mr. Williamson and Mr. Aiken, as reported by the *Rural Press*. According to these statements, Mr. Williamson will contract to furnish young Sugar pines and Redwoods at $2 per 1000, and Mr. Aiken says that the evergreens of the different valuable kinds grown in the East may be had at the same price of nurserymen there, by mail and postage paid.

Now, as for the Sugar Pines, there are no trees one year old, because the old trees did not produce any seed last year, and very few the year before, it is a very difficult matter to obtain Sugar Pine seedlings now. We have a customer for Mr. Williamson who will take all the Sugar Pines of one, two and three years old he can furnish, at the price named by him, and we will guarantee him one hundred per cent. in addition. As for the statement of Mr. Aiken, we will say that we are in receipt of the wholesale price lists of the most, if not of all, responsible nurserymen in the East, and we have never met with anything in the shape of evergreen seedlings which could be bought for less than the following:

Norway Spruce, . .	$ 6 per 1000
Scotch Pine, . . .	10 "
Austrian Pine, . .	10 "

However, we venture to say, that a competent man may, with an appropriation of $8000 from the State, be able to furnish one million of seedlings within one year for general distribution, and the collection would probably contain fifteen to twenty varieties of trees.

We advocate distributing seedling trees, as well as the seed itself, and we like the idea of establishing an experimental ground for that purpose; but it must be left to the discretion of the Forest Board. The objection raised to distributing seeds, upon the ground that very few understand the management of them, is not a valid one. The process is easy, and the proper instructions may be given without difficulty. Many varieties of trees do much better if they are allowed to remain where the seeds were planted, and, with the aid of a little mulching, they will soon establish themselves.

We are of opinion, that if the work of forest and timber tree culture is encouraged by the State, through some such act as the one proposed, we may, in the course of a few years, have on this coast an establishment similar to that of the Botanical Gardens of Melbourne, which furnish annually thousands of trees of all descriptions, and thousands of pounds of seeds --an institution of which we might well be proud. All that we require is proper and good management — *California Horticulturist.*

HORTICULTURAL NOTICES.

OHIO HORTICULTURAL SOCIETY.

WINTER MEETING AT URBANA.

Grapes.—Of this, our most valuable fruit, we had the largest crop ever grown in this section, and of the finest quality. Not much leaf mildew was seen on the vines, and but little rotting of the fruit—none at all in many localities. Prices of the fruit ruled low, owing to the large crop, throughout the country—ranging from three to six cents per pound at home. A very large amount of wine has been pressed, the "*must*" ranging from eighthy to ninety; the wine of the season will be the best ever made in this region. About one and a quarter millions (1,250,000) of gallons of wines, most of it Catawba, have been pressed this season from grapes grown in the district, embracing the several islands, the peninsula and the main shore, and about sixteen hundred tons of table grapes have been shipped to distant markets. We had no frosts to injure the fruit until quite late in the fall, and on the islands some of the grapes were not picked until after the 20th of November. Large amounts of grapes were shipped to Chicago, from Berlin, in this county, by the car-load, the growers clubbing together and sending a full car-load regularly every other day. These grapes invariably went through with despatch, in good order, and gave satisfaction to all parties. The cost of freight was only three-quarters of a cent per pound, or one-third the express rate. This is the first experiment in sending perishable fruit from this region to a distant market as regular freight.

In regard to soils for grapes, I do not think our sandy ridge lands along the lake shore are the best, or so good as solid clays—especially clay hills or slopes where the surface-water runs off quickly. It is true there are some good vineyards on flat clay lands where well drained; but I do not think they will succeed as well in the long run as the hills and slopes; at all events, the drier the better.

At the meeting in Vermilion we saw and heard much about the use of clover and other crops, even *weeds* among grapes, as a means of preventing disease; and we found some cultivators excusing their slovenly practice by adopting this theory. It was clearly shown that sowing clover had been of use in some vineyards on flat soils; and my belief is, that the roots of clover were of use in drawing the surplus moisture from the soil about the grape roots.

On the boundary between my vineyard and lawn I have a very large tree of the native *magnolia accuminata*—the trunk fifteen feet in circumference at the base, and full eighty feet high with spreading top, and the roots drawing the moisture from at least an eighth of an acre of land in summer time. Within this radius are a dozen bearing grape vines of several varieties, and the fruit of these invariably ripens sooner and better than any other in the vineyard. The soil is a sandy ridge, but seldom really dry for a foot in depth, excepting where the moisture is sucked up by this big tree; and wherever there is a depression and the soil is at all moist and rich, there is a liability to rot and mildew. I am half inclined to try cropping with clover.

Hale's Early Peach.—The peach crop, in my section, was very abundant—the best, I think, in the State—and the fruit brought good prices. *Hale's Early* variety was particularly plenty and fine, though much complaint was made of the fruit rotting just at ripening time, and after being picked, before it could be marketed and sold. In one of my orchards, on high, dry sandy soil, where the trees had made but moderate growth, this fruit was very fine, and showed no tendency to rot. But in another orchard, within sight of the first, and the trees of the same age, but on lower and richer soil, where the growth of trees was larger, the fruit of *Hale's* rotted so badly that much of it which looked fair at picking was unsalable the next day.

Much loss was sustained by the owners of peach trees neglecting to thin the fruit at the proper time, so as to improve its size and quality. Neglect of pruning is also a common cause of defective crops, especially where the trees are old, or from any cause unthrifty—as there must be young wood and healthy foliage for good peaches to be produced.

The Business Committee reported the following resolution:

SIZE OF FRUIT BARRELS.

Resolved, That the regular flour barrel, holding under moderate pressure two bushels and three pecks, be recommended and adopted by this society as the standard size of barrel for packing fruits and vegetables to be sold by the barrel.

FUTURE WORK OF THE SOCIETY.

In accordance with the suggestions made by the President, in his address, and also by the Secretary in his report, the Business Committee recommended the adoption of the following resolution:

Resolved, That the Executive Committee be requested to appoint one or more of their number to visit different sections of the State, during the season of fruits, to attend meetings and exhibitions of local horticultural societies and encourage formation of such societies where none exist, to take notes of new or rare fruits and vegetables, investigate diseases and insects affecting fruits, and collect items of interest to this society and report the same at its next meeting.

Mr. F. R. Elliott, of Cleveland, read an essay on "Æsthetic Horticulture: Its Advancement and Influence on Rural Life," which was full of good thoughts and suggestions.

ON PLANTING FOREST TREES.

President Warder said it is high time that we of Ohio had begun to consider the subject of forest tree planting. Our business during the past century has been to destroy the native forests. Those who have observed most claim that if one-fourth of our farms were planted with timber, the increased product of the other three-fourths, in consequence of the shelter alone, would fully make up for the loss of the one-fourth, besides the value of the timber or wood produced.

We have had some difficulty in finding durable timber for pavements in Cincinnati—the famous Nicholson pavements soon wear out under the heavy teams; and they have been experimenting with *black locust*, and came and paid me a thousand dollars an acre for a grove of this timber, scarcely a tree of which was over fifteen years old.

THE NOMINATING COMMITTEE.

The Nominating Committee reported the names of the former officers for re-election, excepting two of the *ad interim* committee, who desired a change. Other nominations were called for, and several made for the *ad interim* committee, when the balloting resulted as follows: President—Dr. J. A. Warder, Cincinnati; Vice-President, G. W. Campbell, Delaware; Secretary—M. B. Bateham, Painesville; Treasurer—Dr. J. W. Dunham, Collamer.

Ad Interim Committee—D. C. Richmond, Sandusky; Leo Weltz, Wilmington; N. L. Wood, Smithfield; W. F. Heikes, Dayton.

WINTER PEARS.

L. Welts—I want to plant two or three thousand winter pear trees for market, and I wish this society would tell me which are the best varieties.

N. Ohmer—The most profitable winter pear with me is the *Vicar of Winkfield*, but the tree is subject to blight. I planted fifteen hundred trees last spring, of the *Beurre d'Anjou* and *Doyenne Boussock*.

Dr. Warder—I would plant freely of the *Jaminette*. The *Passe Colmar* is a high-flavored and desirable pear, and so is the *Beurre d'Aremberg;* but it is slow in coming on. The *Glout Morceau* blights worse than the *Vicar*. The *Winter Nelis* is not a winter fruit in Southern Ohio; *Duchesse* may be kept till Christmas; *Beurre Easter* is difficult to ripen.

The *Lawrence* was recommended by several members as one of the best early winter varieties.

MANURING FOR STRAWBERRIES.

Mr. Moore said he had a strawberry-patch of one-fourth of an acre, on which he applied forty loads of rotted manure—about thirty-five bushels to the load; also, eighteen loads of coal ashes, mixed with coal slack. On this he set his plants; and he now inquires whether he has not overdone the the thing.

Mr. Kirkpatrick—I planted strawberries where an old slaughterhouse had stood, and they all run to tops.

Dr. Warner—There is some danger of making the ground too rich. One of my neighbors took great pains to prepare a strawberry-bed, and afterwards said he had succeeded in raising two tons of strawberry-leaves and a pint of fruit. [Laughter.]

Mr. Mumma said on twenty five square roods of newly-set strawberry-ground he applied to the plants a liberal top-dressing of cow-manure, and the growth during the summer was fine. In the fall he dressed the bed with refuse from a charcoal-pit, mixed with ashes. The result was, he gathered from this patch the past season ten bushels of strawberries, while on lands adjoining, not thus treated, there was hardly any fruit at all.

THE ARBORICULTURAL SOCIETY,

Of Cheever township, Dickinson county, Kansas, held its first monthly meeting near the centre of the township, on Saturday afternoon, January 6th, 1872.

The first business of the meeting was the election of officers for 1872:

President—G. A. Rutledge.

Vice-Presidents—James F. Kennedy, I. Alden, Thomas Manro.

Corresponding Secretary—D. G. Rudy.

Recording Secretary—J. W. Robson.

Treasurer—Daniel Teare.

Executive Board—James F. Kennedy, Joseph Moore, James Miller, Samuel Marshal.

The following are the chairmen of the standing committees:

On Agriculture—James F. Kennedy, D. Teare, Mr. Phillips.

On Orchards—Jared Sanford, W. A. Cleveland, A. D. Colman.

On Vineyards—J. W. Robson, A. B. Griswold.

On Dairy and Poultry—Mrs. Rutledge, Mrs. Robson, Mrs. Kennedy.

On Culinary Vegetables—Samuel Marshall, C. C. Persing.

On Flowers—Mrs. Persing, Mrs. Munro, Jeannie Robson.

On Ornamental and Useful Trees—W. B. Christopher, J. W. Robson.

On Botany—Mrs. Christopher, Mrs. Griswold, Louisa Robson.

On Ornithology—Joseph Munro, Albert Munro.

On Entomology—A. D. Colman, Roger Robson, Charles Dunn.

On Geology—W. B. Christopher, A. D. Colman, Lew Marshall.

On Zoology—R. O. Southworth, A. D. Colman.

On Meteorology—D. S. Rudy, R. O. Southworth, Martin Price.

On Rural Architecture—I. Alden, C. C. Persing, W. B. Christopher.

CONSTITUTION.

Article 1. This organization shall be known as the Arboricultural Society of Cheever township, Dickinson county, Kansas.

Art. 2. Its object shall be the advancement of Timber Culture.

Art. 3. Its members shall consist of persons who pledge themselves to plant forest trees, fruit trees and hedges.

Art. 4. Its officers shall consist of a President, five Vice-Presidents, Corresponding Secretary, a Recording Secretary, a Treasurer, and an Executive Board, which shall consist of the President and four members; all of which shall be elected at the first regular meeting in the year, and shall hold their office one year, or until their succesors in office are chosen.

Art. 5. The officers of this Society and the chairmen of the standing committees shall be chosen by ballot at the regular meeting in January of each year, and a majority of all the votes cast shall be necessary to a choice.

Art. 6. The Society shall hold monthly and other meetings and exhibitions as it may direct.

Art. 7 This Constitution may be amended at any regular meeting by two-thirds of the whole number of votes cast, one month's notice having previously been given.

Being next in order, the subject for discussion was taken up.

Subject for discussion—Ploughing.

James F. Kennedy thought the months of May and June the best time for breaking; a broad furrow is the best, the wider the better; believed the Clipper plow to be the best implement; rather objects to the Moline plow; believes in deep plowing, and deprecates the practice of taking off the sod before planting a crop.

James Moore approved of what the former speaker had said. One and a half or two inches is deep enough for first breaking; believes that May breaking is better than June; recommended planting sod corn as early as possible, and in planting potatoes to use both early and late varieties.

Mr. Southworth believed in sub-soiling new prairie soil before planting corn; has heard the Skinner plow recommended.

Mr. Rudy made some humorous remarks; very early ploughing produced an abundance of weeds; believed in deep ploughing. In 1860, the year of the great drouth, those who ploughed deep and stirred the surface most frequently had a fair crop. Further, he believed that if sod corn was planted in April a better crop would be the result.

Joseph Moore spoke in favor of ploughing two furrows deep, the first two inches, the next as deep as possible; it will take longer, no doubt, but he believes it would pay.

Mr. Christopher noticed that what was broken in April rotted equally as well as that broken in May; did not believe in deep plowing at first breaking; corn planted in the middle of May did the best with him, and thought early planting necessary to escape the ravages of the corn worm, which affected sod corn so much.

Mr. Munro gave the experience of an old prairie farmer, who said that very early breaking always produced an abundance of weeds.

A. D. Coleman recommended the Clipper plow as being the best plow for breaking prairie; endorsed shallow breaking.

Daniel Teare believed that a ten-inch plow will do good work, with a good team of horses, during the earlier part of the season, but is rather tough work when the ground is dry. A sixteen-inch plow needs a bigger team. He has found that ground broken in June was in better shape for cross-plowing in the fall before sowing wheat than ground broken at other periods.

J. W. Robson read a report from the Committee on Ornamental and Useful Trees, in which the Honey maple was recommended for decoration, protection, profit and fence-making.

On motion, adjourned to meet again at the same place on the first Saturday of February.

NEW YORK STATE GRAPE GROWERS' ASSOCIATION.

At the annual meeting of the New York State Growers' Association, held at Rochester, N. Y., on the 15th of February, 1872, the following were unanimously chosen officers for the ensuing year:

President—I. H. Babcock, Lockport.

Vice Presidents—C. S. Hoag, Lockport; Dr. F. B. Seeley, Vine Valley; G. W. Nichols, Hammondsport; D. W. Burge, Peach Orchard; Dr. H. H. Farly, Union Springs.

Corresponding Secretary—T. S. Hubbard, Fredonia.

Recording Secretary—G. F. Wilcox, Rochester.

Treasurer—M. D. Munger, Canandaigua.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XIV. *MAY, 1872.* *New Series, Vol. V. No. 5.*

HINTS FOR MAY.

FLOWER GARDEN AND PLEASURE GROUND.

Taste has been variously defined. Perhaps it may be expressed as putting the proper thing in the proper place. In this view how tasteless are often the garden ornaments we see. Rustic baskets, vases, fountains, rock-work, statues, all or any of which show to so much advantage in the hands of tasteful persons, are too often employed to great disadvantage. It requires much judgment to select the appropriate places for trees, shrubs, or flowers in the garden; but much more to place properly these more artificial adjuncts. It is not uncommon to see rock-work in the midst of the most artificially formed part of the garden, and vases in the wildest places. Good taste would reverse this rule. It is still more frequent to find a piece of rock-work of the most rugged character acting as a base for a large urn or vase. Last summer we noted in one garden, which on the whole, exhibited pretty good taste, an arbor of rustic branches leading out from the parlor-door to the grounds; while down in one of the most retired portions, with everything natural about it, another arbor built by rule and plumb-line and neatly painted, and otherwise adorned, surprised us. Rules for these things can scarcely be laid down. Fitness must be born in one. It is hard to teach it. But hints of this kind often put one on guard, and thus serve a useful purpose.

The bedding geraniums have become so popular of late years that every one now has some of the varied kinds. Few persons in the far away regions have any idea of the vast number of kinds used near the large cities. Every one has a "seedling" to show the visitor. It is very rare to find a variety much different from others grown. Buist's General Lee, noticed a year ago in this magazine, is perhaps the best raised in this section. It has much of the tint of the old Lord Palmerston; but is a regular petaled flower and an excellent grower. How it will behave as a bedder, we suppose the present season will decide. The double varieties have not produced very good bedders, nor have the tricolored-leaved varieties. These, however, are excellent for vases, or choice spots where the full sun will not get at them, and make pleasing contrasts with the deep shade of trees in a summer afternoon. For open sunny spots the Coleus is still one of the best to employ, and here the golden forms do not do as well as the green or purple kinds. The oldest, C. Verschaffeltii, is yet one of the best for sunny spots; but the color of this is much mellowed by being grown a little in the shade. Pretty combinations in partial shade can be made with this and the greenhouse begonias. The spotted caladiums may also enter into the picture, if moisture enough can be supplied. As a bordering for this colored-leaf gardening there are few things more effective than the variegated variety of Vinca major, the great Periwinkle. Some people complain that they have too much shade for a flower garden; but it is some satisfaction to know that these shady nooks are just the things for many leaf plants, provided the place is not too dry.

Very hot out-door places have been favored of late years by numerous succulent plants which do best in exposed situations. The Echeverias come

in admirably for this. Two kinds, E. metallica and E. secunda are now well known, and are becoming cheap enough to be used in quantities with good effect. Some variegated plants stand the sun pretty well, and the variegated Abutilons particularly have been found of this class; and the blotched and striped Alternantheras and Irisenes do well also exposed.

In the way of silver-leaved plants much has been done within the few past years. As a dwarf, the C. ragusina or C. candida, as some catalogues persist in calling it, is yet one of the best; but it does not propagate as rapidly as some other things, and is still rare. There are some new ones very distinct from this, of which C. clementii and C. plumosa are now getting known. Of pretty things not grown for either flowers or gay leaves, the Myrsiphyllum asparagoides is becoming very popular. It is singular that this pretty little plant should have remained many years in old greenhouse collections, until a few years ago the Boston florists found out its merits in basket and bouquet making. The little leaves are like box green and shining, but are on twining stems which give the twigs great delicacy. It is a very nice thing to mix with vase plants. Most of our readers are, however, acquainted with this pretty plant by this time.

All our readers also know pretty well now that our very hot suns are not favorable to the Fuchsia. But besides this the red spider is very troublesome to them, and the heat often gets blamed for the insect's work. Wherever there is any yellowing apparent in a Fuchsia's leaf, see if the spiders are not at work, and if so, apply some of the remedies we have frequently recommended. The insects are small as dust, and require a pocket-lens to see them with. A few years ago a golden-leaved variety called Meteor, attracted some attention. It has now a companion in Golden Treasure.

Tree Carnations of late years have added much interest to the flower garden. They are somewhat straggling growers, but all can forgive that for the sake of their sweet flowers, which are produced one after another during the year. They do not like a very hot and exposed place, but yet are very impatient of shade.

As a rule, people do not think enough in spring of their summer and fall gardening, though all must be provided for at this season. The Gladiolus, Tuberose and Tigridia come in well for this purpose, and the bulb can be set in between the spring blooming plants without interfering with them. Then there is the Pampas Grass, the Erianthus, Scarlet Sage and Tritoma, which will make the garden gay enough. The Dahlia and Chrysanthemum are well-known for this purpose; but generally the Dahlia is put in too warm a place and it blooms too soon to be very effective. On the other hand the Chrysanthemum is placed in a bleak, cold place, where the plants get injured by early white frosts. A warm and sheltered place is the one for them. The new style of Japanese Chrysanthemums is gaining popular ground.

In preparing flower beds, we often notice a mistake made in copying from European gardening. There is to much earth in them.

In planting out flowers don't take them at once from the hot house to the open ground. Set the pots out for a few days in a cold frame with plenty of air, or under a tree in a sheltered place. Before turning them out of pots, water; and when set in the earth, press the soil very hard about the flower roots. If the ground be dry, the earth cannot be pressed too hard.

In this climate, Hothouse plants often make noble bedders. The Chinese Rose Hibiscus, is a first class thing, making a gorgeous show all summer. The Geranium also is getting immensely popular. The tree Carnation is also in much request.

Deciduous trees can be safely transplanted after the leaves have pushed, and up to the first of June; but the new leaves must be taken off, and the young shoots shortened. In a few weeks they will push out a new crop of leaves. According to "natural laws" as laid down in the books, it would injure the trees very much; but after a ten years' observation of the facts, we do not find it hurts the vitality of the trees very much, while few ever die so treated. Evergreens seem to do better in May than in any other spring month. Of the new evergreens, Thujopsis borealis, Cupressus Lawsoniana, Libocedrus decurrens, Thuja ericoides, are really good additions to our list.

Trellisses and stakes for climbing plants and vines should be put in at or before setting out the plants. These plants always seem to grow with more freedom and vigor when they can find something at once to cling to. Climbing vines add greatly to the interest of a garden. They can be trained into all sorts of forms and shapes; and many of them, for gracefulness of form or beauty of their flowers, cannot be excelled by any other tribe of plants.

FRUIT GARDEN.

If large fruit is wanted thinning assists. Strawberries are increased in size by watering in a dry time. Fruit should be allowed to bear only according to their strength. If a transplanted tree grows freely it may bear a few fruits,—but bear in mind growth and great fruitfulness are antagonistic processes.

Handsome forms are as desirable in fruit as in ornamental trees. No winter pruning will do this exclusively. It may furnish the skeleton, —but it is Summer pinching which clothes the bones with beauty. A strong shoot soon draws all its nutriment to itself. Never allow one shoot to grow that wants to be bigger than others. Equality must be insisted on. Pinch out always as soon as they appear, such as would push too strongly ahead,—and keep doing so till the new buds seem no stronger than the others. Thus the food gets equally distributed.

When the strawberry crop is about to ripen, mulch with clean straw, to prevent rain soiling the fruit. Short grass from the lawn is often used; but it mildews as it decays, and detracts from the flavor of the fruit. Hot suns increase flavor, and strawberry tiles were once in fashion to put around the hills, which, by absorbing heat, added greatly to the fruit's rich quality. All that we have said of Strawberries supposes them to be fruited on the hill system, with the runners kept off. Those who desire the best results, will grow them no other way; but many grow them very successfully in beds, believing that though they may not have as many large fruits, they have a greater weight in proportion to the labor bestowed.

Where water can be commanded, there is nothing so profitable as to well soak the soil about small fruits; first about the time that they have set their fruit. Much of the value of this operation, however, will depend on the nature of the soil. The advantages are least in a tenacious, and greatest in porous soil. It is said that an animal derives most benefit from food when it is hungry before it begins to eat; it is certainly so with plants. Water applied to soil already wet is an injury; and water never has so telling an advantage on vegetation as when every leaf is about to wither up for the want of it. A plant that never seems to want water is in a very doubtful condition in regard to its health.

Blackberries and raspberries, set out in spring, may kill themselves by overbearing. It is pardonable to wish for some fruit the first year. If a tree seems to be growing freely, some fruit may be left. Cut out black-knot, or any symptoms of disease that may appear, and *as* they appear.

VEGETABLE GARDEN.

In the cultivation of garden crops, the hoe and rake should be continually at work. Weeds should be taken in hand before they are barely out of the seed-leaf, and one-half the usual labor of vegetable gardening will be avoided. Hoeing or earthing up of most garden crops is of immense advantage in nearly every case. One would suppose that in our hot climate flat culture would be much more beneficial; but a fair trial, say on every other row of a bed of cabbages, will show a great difference in favor of the earthed-up plants. It would be easy to explain the reason of this, but in this column we try to confine ourselves to "hints," and leave reasons to our other departments.

Cabbage Cauliflower, and Brocoli, are now set out for fall crops, and Endive sown for winter Salad. Lettuce also for summer and fall use. This, however, must be sown in very rich soil, and in a partially shaded situation, or it will go to seed. Peas, Beans, and other crops, should be sowed every two weeks. They do much better than when a large crop is sown at one time, and then have too many on at one time to waste.

Melons, cucumbers, corn, okra, squash, beans, sweet potatoes, lima beans, pepper, egg-plants, tomatoes, and other tender vegetables that do not do well till the sun gets high, and the ground warm, should go into the soil without delay. Many find them last as long when gas tarred. Mr. Perriam, of Michigan, uses no poles, but cuts off the runners as they appear, and the plant bears abundantly as a bush. Tomatoes do well tied to poles.

Bean poles should be set before the beans are planted; and near cities where they are comparatively high priced, their ends should be charred. This will make them last some years.

In sowing seeds it is well to remember that though the soil should be deep and finely pulverized, a loose condition is unfavorable to good growth. After the seeds are sown, a heavy rolling would be a great advantage. The farmer knows this, and we have often wondered that the practice never extended to garden work.

COMMUNICATIONS.

ARRANGEMENT OF BOILER AND HEATING PIPES FOR GREENHOUSES.

BY MR. CHARLES F. HITCHINGS, NEW YORK.

It is not my intention to discuss the theories of circulation, or to detail the advantages of this system of heating, but merely to offer a few practical suggestions, which may be of service to those of your readers who are not familiar with the subject.

In making provision for the Heating Apparatus, the most important points to be considered are: first, that the number of pipes and the heating capacity of the boiler is sufficient to maintain the desired temperature in the house during severe cold nights without forcing the fire; next, that the boiler and pipes are so placed as to secure a free and rapid circulation of hot-water through the entire line of pipes; this is essential to the even distribution of heat to the pipes, for if the circulation is sluggish, the hot-water is held back in the boiler until it attains a high temperature, and the flow is so slow as to leave a portion of the return pipe only partially warmed; and last, that we so distribute the pipes within the houses as to furnish a uniform temperature at every part.

As to the number of feet of pipe necessary to maintain the required temperature in a house of given size, the rule generally found in works on the subject, is based on the number of cubic feet of air contained within the house. This rule is obviously of exceptional application, as it makes no allowance for the protection and warmth of the walls over that afforded by the glass, and overlooks the fact that as a house decreases in height and width, the cubic contents are less in proportion to the surface exposed to the cooling influence of the outside atmosphere. The heating of so many cubic feet of air, is but a trifling matter compared with the great loss and waste of heat, occasioned by condensation against the surface of cold glass, and the constant interchange of warm air for cold through the laps in the glass and imperfect closing of the sash or ventilators. To supply these losses is practically the work of the boiler and pipes, for if the walls are warmly built of brick, with an air-chamber between the inner and outer brick to break the communication, or if boarded tightly and filled in with brick with an air space between, the percentage of loss through that source is very small; hence as a general rule, to ascertain the number of feet of pipe required, it will be found sufficient to compute the number of square feet of glass exposed to the cold air at the roof, sides and ends of the house, and provide a proportional number of feet of pipe. For a temperature of 40 to 45 degrees in the house, with the temperature outside at 10 to 15 degrees below zero, one foot of heated surface, or one foot of 4 inch diameter pipe to every four feet of glass exposure, will be found sufficient for houses of ordinary height and exposure; and for a temperature of 65 to 70 degrees, one foot of 4 inch diameter pipe to every three feet of glass exposed; this simple rule we adopted and have followed for over twenty years, modifying the proportions somewhat, according to the height and shape of the roof and exposure of the location to cold winds.

The boiler, to work satisfactorily, should be capable of maintaining the heat required while burning a slow fire that will last during the night without attention. This requires a boiler of nearly three times the heating power that would be necessary, if used with a sharp draft and replenished with fuel at intervals of two or three hours. It would be difficult to specify the number of feet of heating surface in a boiler, or the area of grate that is required to accomplish the purpose, so much depends on the plan and construction and effective heating power of the boiler. It is possible to obtain a large amount of heat from a boiler with a comparatively small heating surface, by increasing the force of the fire and by excessive consumption of fuel; or the amount of surface in a boiler may be unusually large and still prove deficient in power, and wasteful in fuel on account of the defective plan and construction.

To secure a quick circulation of the water, and an efficient heat on all the pipes, the conditions to be observed in the arrangement of the boiler and pipes, are few and simple The boiler should be placed in a pit or cellar excavated to the depth of 4 to 8 feet below the level of the floor of the house, with a short direct connection between the boiler and a brick chimney; the pit should be separated from the house, to exclude any gas or dust rising from the fire. Connected with the

boiler and leading into the house, with an ascent from the boiler, are two pipes to conduct the water to and from the boiler, the one termed the flow-pipe is connected to the upper part of the boiler and conducts the flow of hot water from it; the other, termed the return pipe, is connected to the lower part and conducts the colder water to the boiler. Within the house, the heating pipes are usually placed in two tiers, (although not necessarily so), with one or more pipes in each tier; the upper tier being a continuation of the flow-pipe, and the lower tier a continuation of the return. The lower tier of pipes rest on iron chairs, supported on brick piers carried up a few inches above the floor and level one with the other; in long lines of pipes there is a decided advantage in laying them with an ascent from the boiler, this requires a proportional increase in the height of each pier, as the distance from the boiler increases. The upper tier of pipes is supported on small iron chairs resting on the lower tier. At the end most distant from the boiler, the two tiers of pipe connect with an expansion tank, which serves to hold the increase in the volume of water when heated, makes an outlet for air or steam, and a receiver for filling the pipes, also it forms the communication between the two tier of pipes, and completes the circuit for the circulation. The arrangement for heating several lines of pipe, or several houses from the same boiler are substantially the same, but to avoid obstructions to the doorways or paths, it requires some change in the details connected with the main pipes leading from the boiler, and which the occasion will readily suggest. As the water in the boiler is heated, it passes out through the flow-pipe in a constant current, flows through the whole line of pipes, giving off its heat as it passes, and again enters the boiler through the return-pipe, at a temperature reduced in proportion to the heat imparted to the atmosphere in the house.

If the house is situated on low, wet ground, and it is not practicable to excavate a deep pit, it may be arranged to warm a house of moderate dimensions, by turning the flow-pipe down from the boiler, and with only a slight descent in the return-pipe; but in doing so, we depart from the principle which governs the circulation of water and the result is not as satisfactory. To secure a quick circulation and the best results in heating, the boiler must be placed below the line of heating pipes, with a quick ascent to the pipes, both flow and return, and also an ascent in the line of heating pipes within the house; if these conditions be properly observed, there can be no failure in the circulation. While writing this, I have before me an article recently published, in which the opposite principle is strongly advocated, and therefore feel the necessity of referring more particularly to this point: *that as we increase the depth of the boiler below the line of heating pipes, and increase the ascent of those pipes within the house, so we increase the force and speed of the circulation,—this fact may be easily demonstrated.*

A few words as to the location of the pipes. It has already been stated, that the principal loss or waste of heat, arises from the condensation on the surface of the glass, and the interchange of air through the laps in the glass and other crevices; the circulation of air is similiar to water, the warm air rises and seeks an outlet through the laps and crevices at the high part of the house, while the cold air from the outside presses into the house through similiar crevices nearer the floor; the effect of this interchange is more apparent when it is required to maintain a high temperature in a lofty house. To meet this loss or waste of heat, the greater proportion of pipes should be placed near the outer walls, at the sides and ends of the house, and at least 4 to 5 inches from the floor, and about the same distance from the walls. If the pipes are covered by benches, these should be at least 8 to 10 inches above the pipes, the space between the bench and the floor should be open, also a space of 3 inches or more between the bench and the wall, to allow the air to circulate freely round the pipes and carry off the heat, and to protect the plants resting on the bench near the glass. In order to distribute the heat evenly in wide houses, a portion of the pipes should be placed midway between the wall and a point under the ridge; a similiar distribution of pipes will serve for a house with a lean-to roof against a warm back wall, except that it is not necessary to place any pipes near the back wall.

Much might be said on the location of the pipes, to suit the various purposes of Forcing Graperies, Pine Pits, Propagating Houses, &c., but I fear it would occupy too much valuable space in your journal. [No.—Ed.]

POLYGONUM CUSPIDATUM.

BY J. C., PHILADELPHIA.

As this gigantic, hardy perennial has grown for many years in our garden, attaining somewhat

extraordinary proportions, the following description may be prove of interest. It grows in a six feet circular bed on the lawn, and early in April sends up a hundred smooth, round, hollow jointed canes of a bright green color, thickly mottled with purple.

These canes are from three quarters of an inch to an inch and a quarter in diameter, set very closely together, and grow up perfectly straight, and with the most surprising rapidity, and from their bright green color and purple spots are very beautiful.

From each node, and these are from 5 to 7 inches apart, springs a single leaf, ovate, abruptly acuminate and truncate at the base, about 3 inches long, and on a petiole, so that at first it is sparsely clothed with leaves. At the height of three feet these shoots or canes put forth a few side branches, which increase in number and length with the increased height of the plant, until finally, at an elevation of over ten feet, it forms a large spreading and arching head, densely clothed with graceful foliage, and late in August crowned with abundant panicles of small white flowers. These in England are succeeded by rosy white seed vessels, but our plant has never born seed. When it has completed its growth, its spreading branches cover a space of over thirty feet in circumference, and its whole appearance is striking and beautiful. To show the great rapidity of its growth, it was found that from the first of April to the beginning of May, it reached the height of nine feet, and on the warmest days in April, its strongest shoots grew from six and a half to seven and a half inches in 24 hours.

As on these warm days the growth of its hundred shoots in the aggregate would average not less than four inches daily, it follows that it then makes the enormous growth in 24 hours, of over thirty-three feet!

At the approach of winter it dies to the ground. One fault it has, and that is, that it sends up a forest of suckers to the distance of twelve feet from the plant, and they are difficult to eradicate. This property of running at the root in all directions just below the soil, has been taken advantage of in Japan, according to Von Siebold, for fixing loose sand.

THE PROFIT OF GRAPE GROWING.

BY W., PEN YAN, NEW YORK.

Will the grape interest in our country pay? This is a question that thousands of our American people are desirous to see elucidated.

For my part, I have been compelled from the results obtained from the last six vintages, to almost doubt the propriety of investing capital in the grape interest as a means of support; the vintage of 1870 seemed to correct, in a measure, what had been previously lost. The result was, faith increased. Last fall we had a very heavy crop, and in many sections the frost destroyed whole crops of grapes, especially of the later kinds; some of the most favored sections along the Lakes matured to a good degree of ripeness. The early market opened quite satisfactory, but dropped until Isabella, Concord and many other varieties scarcely paid for boxes, expressage and commissions. Those who sold early feel well, those who sold late, scarcely got pay for sending. The year before, the late market was the best.

In view of this state of grape growing, what can be said? Can light be thrown on the almost dark picture? Some say if you will plant the Rogers you will come out right. The question with me is, is the quality of the fruit good enough? Another says, plant the Iona. The ready reply is that it won't grow, so it is of no use. Others say, Walter is the best. Most vineyard men will say that we have paid for high priced vines enough already. The Croton is a splended grape. It is a high priced grape too, and we don't know that it will bear transportation. The Rebecca is a good grape, but it is deficient in roots, and don't make a good growth once in fifty times without extra care and management, which is seldom ever given; in this section the Catawba is the principal grape about the Lakes. It seems to sell as a market grape equal to any red grape, and as a wine grape it is counted good by those who like a sour wine. The Catawba appears to be unreliable as a dependence, sometimes it proves too late, and is also subject to rot. The Delaware seems to stand the test so far remarkably well; it is set down as a first-class fruit grape and a good wine grape. All are willing to say that the Delaware pays, and pays handsomely. The Iona has been known to pay well; it will sell for a high price for its superior wine qualities. The Walter is thought to be one of the best, if not the very best wine grape. Good judges of wine and wine grapes, say that the Iona and Walter grapes are marvelous wine grapes, making wine equal, if not superior to the best foreign kinds. If we should give full credit to this statement, which I do not

doubt, then we may fairly conclude that grape growing would be a business of large consequence.

In Europe, the most of grapes ranges from 10 cents to $10 per gallon. You see that at such prices, grapes should range from three-quarters of a cent to seventy-five cents per pound, which is a great range in price. I am aware that grapes of a very high quality are apt to be very feeble growers, producing light crops. If we admit this, then there will be room for a good and profitable business. I am informed that a gentleman at Canandaigua had thirty Rebecca vines set eight by eight feet, from which he picked, packed and sent to market last fall. After paying all expenses he received net, $103.35 or $3.44½ per vine. At that rate, say 650 vines per acre, the net receipts would be $2,239.25 per acre. His Isabella grapes only paid for sending.

I noticed that California White grapes were quoted in New York market from thirty to forty cents per pound, during which time we were selling our best Catawbas for eight cents per pound in the same market. Can any of your many grape growers tell us grape growers who have Isabellas and Catawba vineyards, how to manage to obtain such prices? If we can make such wine, why should we be importing millions of dollars worth yearly? Why don't some of our capitalists look the question of wine making up? I am confident that wines of great excellence can be made from some of our best wine grapes, and it looks to me as if some way might be found to produce them in qualities equal to the market demand. If this can be brought about, it seems to me that it will be safe to conclude that grape growing in this country will take the first rank in importance and value. More capital is needed, good and judicious selections of varieties are important. We have already flourishing Wine Cellars, but not half enough of them. It is plain to be seen that they are doing a very prosperous business.

[A correspondent sends us the above copy of a letter, addressed to the Penn Yan Chronicle, with a request that if found of interest, it may also be published in the *Gardener's Monthly*.—ED.]

THE GERMAN NAME OF ABIES PICEA.

BY S. W. M., COLUMBIA, PA.

I read an article in a recent number of the *Gardener's Monthly*, in which Tanne is spoken of as the German name of the Abies Picea. This does not agree with the statement of Loudon, in his Encyclopedia, page 802. He says:

Pinus Cembra, the Tannerbaum of Lord Byron (Childe Harold, canto 4, stanza xx), and the Aphernousli Pine of Harte grows higher up the Alps than any other Pine, and it is even found at elevations where the Larch will not grow. This agrees with Byron's account of it, who says in his poem:

> But from their nature will the Tannen grow,
> Loftiest on loftiest and least sheltered rocks.

and in his notes to canto fourth:

Tannen is the plural of Tanne, a species of fir peculiar to the Alps, which only thrives in very rocky parts, where scarcely soil sufficient for its nourishment can be found. On these spots it grows to a greater height than any other tree.

This agrees with Loudon's description, and is pretty good proof that his statement is correct.

It is true that Tanne is usually translated fir, and that Pine is rendered in German by Fichte, but then the attempt of Botanists to restrict the name of Pine to the genus Pinus, and Fir to that of Abies, has not been successful. The Scotch Fir is an undoubted Pinus (*Sylvestris*), and Byron would not be likely to be versed in such minute shades of meaning.

Loudon says: The wood is very soft, and having scarcely any grain, is very fit for the carver, and is used extensively for this purpose by the peasantry of the Tyrol.

It gives additional meaning to Byron's splendid imagery, if the soft and delicate substance of these swiss toys is really the product of the tree, which beyond all others, braves the storms and tempests of the Alpine summits. Who can with certainty decide the question?

A WARNING TO HUSBANDMEN.

BY CHRONICLER, PHILA.

The great fires that destroyed the trees upon thousands of acres of forest lands in the state of Michigan last year, and the vast quantities of timber used for railways and building purposes, the large amounts annually transferred into charcoal, and that which new settlers burn in clearing their lands to sell the ashes for soap and potash making, all admonish us to warn our fel husbandmen in the states east of the Mississippi River, that timbers for fencing will, ere long, be scarce and costly. It is now high time for us to use other materials for fencing. Iron wires have been tried and failed; the stretch is destructive, and the expansion and contraction by heat and cold upon the wires, make them unsuited for our

variable climate. *Live Hedges* are our only relief, and by special care will last for ages. *Osage Orange* and *Honey Locust* are suitable, and thrive upon various soils and in different latitudes. In three years after planting they are effectual barriers against the trespass of our herds and flocks. Millions of plants are for sale in our nurseries for $12 per thousand, which make 333 yards of hedge. Set a foot apart, plow a strip three feet broad, harrow it well, then throw out a deep furrow with the plow both ways in the middle, shovel and flatten the bottom; then set the plants a foot apart, and fill in the soil over their roots and tramp it firmly down. The first two years after planting, keep the strip free from weeds, and prune in winter. After gaining two years growth they will fight their own battle with weeds. Prune in winter; the prunings may be piled as fences upon wet spots where the plants might not thrive, or burn them, and the ash will be a fertilizer. We are aware that old husbandmen will smile in derision at our announcement, but time will convince young cultivators of its truth. Those who have not their "Lamps trimmed ready" when the fact is made manifest, will find themselves in the place of the "Foolish Virgins."

Look back upon Europe, from whence all we white citizens have sprung. Upon the Islands nearest to us, improved lands were fenced with timbers, mostly got in *Scotland*, which was then a vast forest, and called "Caledonia," meaning the "land of the forest." The different Clans claimed certain parts as their rightful inheritance, and the head or Chief of each Clan was called "Walter," the original name for "Forester and Wood Merchant." For several ages no one imagined that the timbers of "Caledonia" would diminish in quantity, until time brought the truth to light. Husbandmen then tried their native *Hawthorn* for live hedges, and it proved to be the cheapest and best material for fences; it is now universal in England, Ireland and Scotland, Wales, &c. Our native *Osage Orange* and *Honey Locust* are as suitable for our fencing by live hedges, and *the time may come* when they will become universal with us.

Evergreen Hedges are most appropriate for garnishing and beautifying ornamental grounds. The *Norway Spruce* makes a strong, thick hedge, suitable for an outside enclosure; and for small grounds and gardens, the *American* and *Siberian Arborvitæ* and *Hemlock Spruce* are admirable. Where diversity is wanted, the *Chinese*, *Golden* and *Variegated Biota*, tree *Boxwoods*, *Junipers* and *Evergreen Privet* are suitable. Specimens of such hedges are seen in our leading nurseries. The twenty acres of ornamental grounds of "Bloomsdale," of David Landreth & Sons, are wholly enclosed with evergreen hedges.

SMALL BULBS.

BY A. G., READING, PA.

There are many small bulbs with pretty flowers, which seem to be little known among the "flower sisters" who do not possess regular greenhouses. To call attention to these, and thus afford a new pleasure to some, I give a description of those I have cultivated, and my experience therewith.

First, as most easy to cultivate, is the Fairy Lily, which in Rand's Book of Bulbs, is placed under the heading of Zephyranthus. This bears a lily-shaped, rosy pink blossom, something more than 2 inches in diameter, on a steam 5 or 6 inches high. The leaves are narrow, and from 4 to 8 inches long, according to cultivation, and resemble the leaves of some kinds of grass, having a keel to the leaves. A pot full, (6 inches in diameter), will throw up over 50 flowers in succession. They bloom in summer. They are often dried off and kept in bags in winter, then planted out in early spring. Some ladies border their garden beds with them. All "flower sisters" are charmed with the Fairy Lilies. Any good mellow soil will do for these.

There is a white flowered kind, resembling the above in the flower, which, however, are more crocus-shaped. It was bought of John Feast, of Baltimore, under the name of Zephyranthus. The flowers are of a pure white, with a yellow tip to the centre of each petal. The leaves resemble those of a fleshy red, being narrow, thick and of a dark green. These do not bear drying off as well as the pink, and sometimes die. If kept in cultivation, the leaves remain of a lively green all winter. I have seen it stated that both the above were hardy.

The Anematheca cruenta bears a sprightly, pretty scarlet flower, which blooms as early as February if properly cared for, though I have seen it also in summer. The flower is almost oval in shape. They grow in branching stems from a main one, and succeed each other for several weeks. The flowers are numerous; the leaves somewhat resembling a miniature gladiolus. The soil should be three parts loam, two of leaf, one of sand, and one of manure. They are dried off

when spring comes, and in August separated and repotted. Mine were bought of R. Buist, of Philadelphia. H. Dreer of the same city also has them.

Ixias are next in regard to ease of cultivation, and are very pretty too. They somewhat resemble a gladiolus in minature, though the flowers are more delicate and farther apart on the stem, and nearer a crocus-shape. They are not often an inch length. The leaves are narrow; their height from 6 to 12 inches. The colors are various, I have had lilac and white, (Ixia squalida), orange color, and scarlet. There are many others which I have not seen. They bear seed, and are easily raised from that, though they send off offsets every year. With a little protection, they are said to bear the winter in England. James Vick, of Rochester, N. Y., R. Buist, Sr., of Philadelphia, Pa., John Feast, of Baltimore, and H. Dreer, of Philadelphia, Pa., have these bulbs for sale. They require the same soil as the Anematheca Sparaxis; these are the most brilliant of all. The colors in some are dazzling. They are larger than the Ixias, and have deeper tints. The flower is more open, and the leaves thicker and firmer. They require the same soil and treatment as the Ixias and Anemathecas. The Sparaxis tricolor is splendid, with its contrast of yellow, black and scarlet. I have seen this and other brilliant ones at John Feast's of Baltimore.

The Tritoma resembles the Ixia, but it is larger in growth,—it requires the same soil and treatment. H. A. Dreer has these for sale, as well as the Sparaxis.

The Babirana bear pretty flowers. Their leaves are fluted, and stand up like the Ixia. I found mine difficult to cultivate, being incessantly attacked by the red spider. It bloomed but once in several years. H. A. Dreer and R. Buist, Sr., of Philadelphia, keep these.

The Peacock Iris, or Viesseuxia, is a diminutive bulb, bearing a flag or iris-shaped flower, with somewhat of the color of the eye-feathers of the peacock. It is as curious as pretty, rather more so, perhaps. The leaves resemble common grass. The flower stem is but a few inches high. Comparativly few of the "flower sisters" have seen these in bloom. Mine were obtained of H. A. Dreer, of Philadelphia, Pa.

The Trietelia I shall have to give on the authority of an experienced "flower sister" of our city. I have it, but it has not bloomed. Mine was bought of John Feast, of Baltimore. It bears a white, sweet scented star-shaped flower. The leaves somewhat resemble those of a hyacinth, but are thinner and longer. It is hardy, and can be treated as a hyacinth, in the garden or in cultivating it as a pot plant. It is a native of South America.

Last spring I met with a lovely star-shaped blossom, of a blue color, which I at first thought was a blue Trietelia, but on comparing the leaves find them entirely different. The color was nearly that of the blue variety of our wild viola pedata. I do not know its proper name.

The white Scilla may be mentioned as a pretty little flower, reminding one of the lily of the valley. It is hardy. The blue is said to be pretty also. H. A. Dreer, of Philadelphia, has these.

The Oxalis is so well known it needs but a mention of it. The O Bowii is the large pink, full-blooming one. The flowers are 1 inch in diameter under good cultivation, and the leaves, two or more inches in breadth; the latter are so fine as to make it almost a *leaf plant* in beauty. This variety must have *light* and *heat* to bloom it in perfection. The primrose colored is next in beauty. This blooms in the spring, dies down and is repotted in August or September. There is a neat, small, white one, which blooms nearly all summer. There is also a small pretty pink trailing one, a profuse bloomer. One lady told me she had had 400 flowers at a time on one of hers. The O. versicolor is curious and pretty too. The leaf is quite narrow,—the flower shaped more like a miniature morning glory. All Oxalis should have the leaves well grown after blooming, to insure good bloom for the next year. The soil required is the same as for the Ixia.

I forgot to say that the Fairy Lilies were given to me, but I see that Richardson & Gould, of New York, advertise them.

LIQUID MANURES.

BY MR. W. B. WICKEN.

Of all forms of manuring, from which a speedy and effective result is desired, there is none more easily obtained, and convenient, than manuring by liquids.

The use of liquid manures is not so popular as it deserves to be, owing partly, I believe, to injudicious use. In the course of this paper, I intend briefly to call attention to the advantages derived from its use, and the mode in which it acts.

Liquid manures can never be conveniently made to supersede the use of solid matters as

fertilizers, but at certain stages and conditions of the growth of plants, they will prove a powerful and effective aid.

The immediate and powerful influence of liquid manure upon vegetation can readily be accounted for, as follows: plants are incapable of receiving into their circulation, any substance which is not in a fluid state. Solid manures contain most of these substances, which form the food of plants in a solid state, which decay slowly in the ground, and become useful only after a time. Liquid manures contain these substances in a ready state of solution, which on application, are at once obsorbed by the roots, and are passed into circulation of the plant. The action of liquids will be more evident, but will not continue for such a long period as solid manures.

The immediate effect of liquid manures constitute their most important characteristic, the advantage of which will be more especially appreciated at a time when plants are required to produce an extra development of growth, fruit or flowers. The next point to be considered, is the most convenient form of obtaining an effective manure. The urine of animals is readily obtained, and if properly prepared, is a very powerful fertilizer. The drainage of cowyards, stables, and similar places, should be conveyed to a *covered receptacle*, and there water should be added to the proportion of one of urine and two of water. The liquid will then undergo fermentation, after which process it will be "ripe" and fit for use. If the urine is allowed to ferment in an uncovered tank, it will lose a great portion of one of its most powerful fertilizers, viz: "Ammonia," which will be given off to the air and lost. Another fact worthy of consideration is that water should be added before fermentation has taken place, for it has been proved by actual experiment that cows urine, six weeks old, unmixed with water, contains only *one sixth* part of the ammonia contained in similar urine mixed with over one half its bulk of water previous to fermentation. Animal urine should on no account be used in an unfermented condition. I may here state my impression, that the bad name given this manure by some, is owing partly because it is sometimes used before fermentation has taken place, and sometimes because it has fermented in the open air, and has been over diluted by rain &c., and is of no more worth as a fertilizer than dirty water. Manure of this description should be perfectly clear, (not colorless), but free from all muddy matter, or portions of organic matter floating in it, which if used for plants in pots, causes a nasty scum on the surface of the soil, besides filling up the interstices of the soil, (which should be occupied by air), and making it sour and sodden; for be it remembered that the nutritious properties are saline and other mineral substances held in a state of solution by the water. There are several other liquid fertilizers, equally as powerful, or more so than the above, others of a milder nature. Guano dissolved in water to the proportion of a piece of the size of a hen's egg to about a gallon and a half of water, gives a powerful manure. This is less odious than urine, which in some cases makes it more preferable, as it can be used in the conservatory &c., where the other would be excluded from its objectionable smell. In my opinion, this is the test of all liquid manures, as it contains a greater number of the substances that form the food of plants, than any other manure. The solid excrements of sheep and cows, steeped in water, make a mild and useful manure. The dung of fowls, soot, and the liquid refuse from bone-boiling works, may be used with good effect.

There are several highly concentrated manures sold, such as "Standen's Gardener's and Amateurs friend," solutions of which possess one advantage for application in the greenhouse, &c., —that they are more cleanly. Another point worth noting is, that plants are benefited by a change, as some manures contain substances which others are totally deficient.

ON THE RELATION OF ODORS TO PLANT LIFE.

BY C., PHILADELPHIA.

In the course of your intelligent researches into the economy of vegetative life, has there been occasion to observe any indication that the aroma of a blossom may be designed to subserve a useful purpose in aid of its vital functions. Or can it be true, "That many a flower wastes its fragrance on the desert air?"

The investigations of Prof. Tyndale, in the London Royal Institution, have revealed some facts relative to the radiation of non-lumnious heat, that may have a bearing on this physiological question, and lead to more correct ideas with regard to it than are inculcated by the rythmic lines of the poet. His beautiful experiment shows a remarkable hindrance to the transmission of non-luminous heat rays through the vapors of

volatile bodies, both solid and liquid. These impermeable vapors being invisible and transparent, and therefore quite inappreciable by our natural senses, except when cognizable by smell. In the animal odors of Musk, &c., and the aroma of flowers, he found no exception to the general rule. To use the Professor's expressive words, "We can weigh the odor of a rose." This law of impermeability serves to explain many curious natural phenomena, and may also give us an insight into some of the wise provisions of a beneficent Creator. The luminous heat rays of the sun penetrate these invisible vapors with much freedom, but when portions of these heat rays unaccompanied by light, come to be radiated out toward the sky, they are held back by vapors that are invisible to us, and the tops of plants which are most exposed, are measurably protected from the excessive cooling they would have to endure if no atmospheric vapors existed.

In some parts of India, where the air is remarkably free from vapors, water is frozen on summer nights by exposure to the clear sky in shallow pans carefully screened from the heat emanating from the soil.

May we not therefore, suppose that a tender flower when exhaling its aroma most copiously after sundown, is thus spreading a canopy over its own bosom, that is designed to protect it from too great loss of warmth?

PINUS EXCELSA AND OTHER EVERGREENS.

BY MR. B. LANDRETH, BLOOMSDALE, PA.

In recent numbers of the "Gardener's Chronicle and Agricultural Gazette," notices have been made of the Himalayan Pine (*Pinus excelsa*) bearing cones, some of them fruitful, from which it may be inferred that such cases are rare.

It may interest you to receive a cluster of cones from a tree at Bloomsdale, which has been in bearing for several years. Originally imported from a London nursery about 1850, it has grown with even more luxuriance than might have been expected from one of the "Weymouth" class, and now as its branches trail upon the sward, covers a circumference of one hundred and twenty feet,—its height forty feet. Other specimens of later importations have advanced finely, and bear cones also.

There has been some doubt expressed as to the durability of the *P. excelsa* in our climate; of course it is yet too soon, with our short experience, to speak positively, but so far as the specimens referred to are an index, the promise is equally good with our native White Pine.

Many of the earlier plantings of other conifers at Bloomsdale are now producing cones.

Abies Douglassii, most curiously bracteated, *A Menziesii*, *A morinda*, *Picea Cephalonica*, of which there are trees bearing cones by the score. *P Nordmanniana*, with its grand imposing seed vessels, *P pichta*, *Larix leptolepsis*, *P Cembra*, and others.

By the way, speaking of *Piceas*, have you seen evidences of decay in the *P pectinata*. Several finely developed specimens with us have suddenly sickened and died, and without visible cause. So many within a few years, we should hesitate to plant that tree in situations where single specimens or clumps might not be spared. The Silver Fir is in high favor with many admirers of evergreens, and to have it under the ban of planters and men of taste, would be a serious misfortune. It is true the ordinary Balsam Fir when well grown, cannot be readily eclipsed, but so many disgusting abortions are to be seen on every hand, that few persons are willing to plant it, besides its period of prosperity is bounded by less than half a century, when its lower branches give way, even with care, and it must then be made to yield to newer favorites.

There are but few subjects, Mr. Meehan, which the *Monthly* can discuss with greater advantage than the style of trees to plant, and where to plant them. So many are unsuited to the purpose designed, so many misplaced with reference to space and distance from the drives and walks; tall growing evergreens planted in shallow front yards, where an Irish Juniper or Yew would be appropriate, and resinous trees within the influence of the city atmosphere. The remote portions of our Park may afford protection to such trees, but it will be use useless to plant them near the city lines.

[We feel greatly indebted to Mr. Landreth for these notes. Some few years ago, a few of the earliest specimens of the Pinus excelsa introduced, suffered from some cause still unexplained. About two or three feet from the ground the bark died, and after two or three years, the whole tree above this injury gave out. We saw them this way at Long Island, Rochester, Philadelphia and elsewhere. Since that time we have seen none like those were; but luxurious specimens everywhere abound, and we have faith that this noble tree, every way su-

perior to our own Weymouth or White Pine, will become an universal favorite.

The *Picea pectinata*, or common Silver Fir, does well everywhere. The injury noticed by Mr. Landreth, must be local or temporary, as that referred to in Pinus excelsa no doubt was.

There is no subject more valued just now than tree knowledge, and we shall be glad to receive any notes of this character from any of our correspondents.]

PARASITE ON THE APPLE WORM.

BY MR. P. H. FOSTER, BABYLON, N. Y.

The subject of the destruction of the apple-moth (*Carpocapsa Pomonella*) occupies my mind to a considerable extent. I have tried every known means, and within a few days have expended ten dollars for English sparrows, which are now all dead. I discovered a parasite on the above moth or worm in the year 1869. Sent a specimen to B. D. Walsh, Illinois, which he calls a species of hair-snake (*Gordius*). Also found one last summer embedded in the apple-worm, in the centre of a large pear. This Gordius is white, and how it comes in the apple-worm is strange to me. We have a good article in the *American Entomologist*, vol. 2, pp. 193, from or by Professor Joseph Leidy, Philadelphia, on the Gordius. He there describes several, and mentions one which he calls white hair-worm (*Mermis*), which is the only one that corresponds with the specimen I have reference to. There is no doubt I may secure some specimens another year, as I kill thousands of the apple-worm. I would like to have you call the attention of the readers of the *Monthly* to the subject of their destruction; also inventors. We should have a fund provided for him who will teach us how to make a clean sweep of the rascally foe.

NOTES FROM WESTERN PENNSYLVANIA.

BY MR. A. HUIDEKOPER, MEADVILLE, PA.

We are having in Western Pennsylvania a good old-fashioned sort of a winter, having now had three weeks of consecutive sleighing, with about as much more earlier in the season. We have had the mercury standing 15° below zero on the low grounds, and at 8° or 10° below it on the hills, while a temperature of from 2° to 6° below zero has occurred frequently. We shall look forward with interest to the effects of this in the spring. Yet I have known quite as cold wintry weather followed by a good fruit season. The danger lies often as much in sudden reaction as in the low temperature.

It strikes us oddly amid our Siberian snows, to see the *Gardener's Monthly* suggesting planting peas and potatoes the latter end of February in the Middle States, being the paradise where I suppose you locate your editorial self. It shows we will have to use some more contracted limitation than States, when we are speaking of climate. Peas we know are very hardy, but when the *Monthly*, referring to potatoes planted in February, says that the frost will seldom get into the newly-dug ground deep enough to injure them, I feel almost inclined to ask, how is it about the tops? At this end of the Keystone, it trenches on audacity in gardening to get potatoes into the ground until after the middle of April.

I am glad to add my testimony to that of Mr. Blodgett as to the candor and fairness of the *Gardener's Monthly*, and its good sense in ruling out asperity of criticism. A pomologist, with a hoe or pruning-knife in hand, is generally rather a genial sort of a person; but let him be around with a quill, and it is strange how his combativeness returns to him. I have no doubt about our community having been humbugged by over-praised novelties in the way of seeds and fruits, but it is difficult to know when failure results from deception or when from adverse circumstances. For instance, Mr. Satterthwait pronounces with him the Tyson pear as a poor bearer. Such an objection does not seem to lie to it here. With me the Clinton grape proved so worthless that I would not grow it; but through the kindness of Mr. Saunders I tasted it last fall in Washington, and was surprised at its comparative excellence. Travel, experience, observation, seem necessary to make men charitable in more departments than one. Mr. Blodgett's plan of "trying all things" is good, if one possesses himself with patience, biding his time, and letting the five-dollar monopolist find in the interim other victims of enthusiasm.

Since I wrote to you last, I have imported the Fintindo grape from France. It is rather to the discredit of our present custom-house system in New York, that a box containing four grape vines should cost seven dollars (exclusive of duty) to get through the hands of the Collector, but a bill on my table shows it to be a fact.

The vines were sent in crocks, which were broken in transmission, but the wood looks fresh, and if the roots have not got too dry, I hope I may be able to test it partially this season. I shall plant some cuttings with a view to its introduction by exchanges with cultivators in different parts of the country next autumn. If, as the books say, it is considerably earlier than the Black Hamburg, it ought to be a valuable acquisition to our vineries.

Hoping when the season advances to see some report from you as to the results upon foliage, &c., from your successful experiment in getting one shoot from the union of bisected buds of different varieties of apples, in anticipation of the further interesting product when the shoot shall become large enough to fruit,

FIRE HOT-BEDS — FORCING-PITS.

BY MR. JAMES WEED, MUSCATINE, IOWA.

The annual consumption in the United States of thousands of tons of manure for heating hot-beds involves a waste of fertilizing materials of great magnitude. We import guano from the ends of the earth, at great cost, to enrich our soil, and burn stable manure for fuel.

Dr. Hull, in the *Prairie Farmer*, and Mr. Reihl, in the *Journal of Agriculture*, described methods of heating earth enclosed under sash by earth and stone, or drain-tile flues. Peter Henderson, in the *Agriculturist*, June, 1870, criticises these "fire hot-beds;" says they have been tried and abandoned about New York; are inaccessible as greenhouses, and waste too much heat as hot-beds. He appears to have arrived at the practical conclusion that no satisfactory substitute can be found for the manure hotbed, except the low and econominal houses in use about New York, heated by a first-class hot-water apparatus.

Two years ago we constructed three ranges of frames, each sixty feet long by six wide, for sprouting sweet potatoes. They were sunk nearly even with the surface of the ground, which inclined to the southwest, about fifteen inches in twenty feet. Each bed was chambered its whole length, five feet wide by eight inches deep, by waste sheet-iron, from a burnt elevator, placed on bricks, supporting six inches of earth. Each bed had a furnace at the west end placed below the eight-inch chamber, and an earth-flue, covered with sheet iron, was carried underneath some twenty feet before opening into it. A six-inch stove-pipe, with damper at the upper end of the chamber, completed the arrangement for fire-heating. These frames were provided with our improved hotbed shutters, each twenty feet long, and were used, without sash, answering most admirably the purpose for which they were designed. The quantity of fuel required for heating these beds was much less than we expected.

For forwarding plants in spring, to be planted in the open ground in May, and for early radishes, lettuce, &c., these "fire hotbeds" have advantages over manure-beds, in not requiring to be made up every year, the soil having only to be forked up and raked when the time for sowing arrives, and in affording perfect control of the amount of heat required. If the weather is cold, the fires are increased, and if it changes suddenly warm they are diminished or suspended altogether. We had little more than got our beds fairly in operation the past season, when a warm spell gave us for two weeks the usual high temperature of June.

It is often a matter of much importance to be able to accelerate or retard the growth of plants at will, and it is a great desideratum to be able to use just as much and no more artificial heat, whether at a maximum or minimum cast, as is necessary for our purpose. Manure-beds afford a constant and regular supply of heat which is favorable to keeping plants safely through cold nights, but fire hotbeds should have a compensating provision in efficient means of protection, by which heat, when generated, will be retained instead of being radiated as fast as it is produced.

The only opportunity for material improvement in the best forms of forcing-pits in use at the present time, is in protection to plant structures whereby less artificial heat will be required, and greater safety to plants secured.

In a future article we may submit a plan of a forcing-pit arranged with a view to economizing fuel and greater immunity from sudden and extreme changes of temperature.

ELIGIBLE TIMBER TREES.

BY FERD. VON MUELLER, MELBOURNE, AUS.

(*Continued.*)

EUCALYPTUS CITRIODORA, Hooker.

Queensland. It combines the ordinary qualities of many Eucalypts the advantage of yielding from its leaves a rather large supply

of volatile oil of excellent lemon-like fragrance.

EUCALYPTUS DIVERSICOLOR, F. v. Mueller.

The Karri of S. W. Australia. A colossal tree, exceptionally reaching to the height of 400 feet, with a proportionate girth of the stem. The timber is excellent. Fair progress of growth is shown by the young trees, planted even in dry exposed localities in Melbourne. The shady foliage and dense growth of the tree promise to render it one of our best for avenues. In its native localities it occupies fertile, rather humid valleys.

EUCALYPTUS GLOBULUS, Labill.

Blue Gumtree of Victoria and Tasmania. This tree is of extremely rapid growth and attains a height of 400 feet, furnishing a first-class wood; shipbuilders get keels of this timber 120 feet long; besides this they use it extensively for planking and many other parts of the ship, and it is considered to be generally superior to American Rock Elm. A test of strength has been made between some Blue Gum, English Oak, and Indian Teak. The Blue Gum, carried 14 lbs. weigh more than the Oak 17 lbs. 4ozs. more than Teak upon the square inch. Blue Gum wood, besides for shipbuilding, is very extensively used by carpenters for all kinds of out-door work, also for fence rails, railway sleepers,—lasting about 9 years,—for shafts and spokes of drays, and a variety of other purposes.

EUCALYPTUS GOMPHOCEPHALA, Candolle.

The Tooart of S. W. Australia; attains a height of 50 feet. The wood is close-grained, hard and not rending. It is used for shipbuilding, wheelwright's work and other purposes of artisans.

EUCALYPTUS MARGINATA, Smith. *

The Jarrah or Mahogany tree of S. W. Australia, famed for its indestructible wood, which is attacked neither by Chelura nor Teredo nor Termites, and therefore so much sought for jetties and other structures exposed to sea-water, also for any underground work, and largely exported for railway sleepers. Vessels built of this timber have been enabled to do away with all copperplating. It is very strong, of a close grain and slightly oily and resinous nature; it works well, makes a fine finish, and is by shipbuilders here considered superior to either Oak, Teak, or indeed any other wood. The tree grows chiefly on iron-stone ranges. At Melbourne it is not quick of growth, if compared to our Blue Gum (*Euc. globulus*, Lab.) or to our Stringybark (*E. oblique*, l'Her.), but it is likely to grow with celerity in our ranges.

EUCALYPTUS ROSTRATA, Schlechtendal.

The Red Gum of Victoria, South Australia and many river flats in the interior of the Australian continent. Although a native tree of this colony, it has been introduced into this list on account of its wood being of extraordinary endurance under ground, and for this reason so highly valued for fence-posts, piles and railway sleepers; for the latter purpose it will last at least a dozen years, and, if well selected, much longer. It is also extensively used by shipbuilders—for main stem, stern post, inner post, dead wood, floor timbers, futtocks, transomes, knight head, hawsepieces, cant, stern, quarter and fashion timber, bottom planks, breasthooks and riders, windlass, bowrails, &c. It should be steamed before it is worked for planking. Next to the Jarrah from West Australia this is the best wood for resisting the attacks of sea-worms and white ants. For other details of the uses of this and other native trees refer to the Reports of the Victorian Exhibitions of 1862 and 1867. The tree attains a height of fully 100 feet. The supply for our local wants falls already short, and cannot be obtained from Tasmania, where the tree does not naturally exist.

EUCALYPTUS SIDEROXYLON, Cunn.

Iron Bark tree. It attains a height of 100 feet, and supplies a valuable timber, possessing great strength and hardness; it is much prized for its durability by carpenters, shipbuilders, &c. It is largely employed by wagon-builders for wheels, poles, &c.; by ship-builders for top sides, tree, nails, the rudder (stock), belaying pins and other purposes; it is also used by turners for rough work. This is considered the strongest wood in our colony. It is much recommended for railway sleepers, and extensively used in underground mining work.

EXCÆCARIA SEBIFERA, J. M. (*Stillingia sebifera*, Mich.)

The tallow tree of China and Japan. The fatty coating of the seeds yield the vegetable tallow. The wood is so hard and dense as to be used for printing blocks; the leaves furnish a black dye. The tree endures the

night frosts of our open lowlands, though its foliage suffers.

FAGUS CUNNINGHAMI, Hooker.

The Victorian and Tasmanian Beech. A magnificent evergreen tree, attaining collossal dimensions, and only living in cool damp rich forest valleys, not rarely 200 feet high. The wood much used by carpenters and other artisans, the myrtle-wood of the trade. It requires to be ascertained by actual tests in the forests, whether the allied tall evergreen New Zealand Beeches possess any advantage over ours for forest culture; they are: *Fagus Menziesii*, Hooker, the Red Birch of the colonists; *Fagus fusca*, Hook., the Black Birch; *Fagus Solandri*, Hook., the White Birch. A magnificent beech, *Fagus Moorei*, F. von Muell. occurs in New England.

FAGUS SILVATICA, L.

The deciduous beech Britain, of most parts of Europe and extra tropical Asia, and as *Fagus ferruginea*, Ait. in a particular variety, extending through North America. The trunk has been measured in height 118 feet, the head 350 feet in diameter; the wood is hard extensively used by joiners and shipbuilders. An allied beech, *Fagus Sieboldii*, Endl., occurs in Japan. All these could here be grown to advantage only in our springy mountain forests.

FICUS SYCAMORUS, L.

The Sycamore Fig tree of the Orient, copiously planted along the road sides of Egypt. The shady crown extends to a width of 120 feet. Though introduced, we have as yet no local means of raising this tree in quantity, and must therefore rely on fresh importations of cuttings or more particularly seeds.

FICUS MACROPHYLLA, Desfont.

The Moreton Bay Fig-tree, which is indigenous thorugh a great part of East Australia. Perhaps the grandest of our avenue trees, and among the very best to be planted, although in poor dry soil its growth is slow. In our latitudes it is quite hardy in the lowlands. The foliage may occasionally be injured by grasshoppers. Easily raised from seed.

FRAXINUS AMERICANA, L.*

The White Ash of North America. A large tree 80 feet high, which delights in humid forests. Timber valuable, better resisting extreme heat than the common Ash. The Red Ash (*Fraxinus pubescens*, Lam.), the Green Ash (*F. viridis*, Michx.), the Black Ash (*F. sambucifolia*, Lam.), and the Carolina Ash (*F. platycarpa*, Michx.), are of smaller size.

FRAXINUS EXCELSIOR, L.*

The ordinary Ash of Europe and West Asia. Height 80 feet, of comparatively quick growth, known to attain an age of nearly 200 years. Rich soil on forest rivulets or riverbanks suit it best; wood remarkably tough and elastic, used for agricultural and other implements, for oars, axletrees and many other purposes. Six peculiar kinds of ash trees occur in Japan, some also in the Indian Highlands; all might be tried here. (24.)

FRAXINUS FLORIBUNDA, Don.

Nepal Ash 40 feet high.

FRAXINUS ORNUS, L.*

The Manna Ash of the Mediterranean regions. Height about 30 feet. It yields the medicinal manna.

FRAXINUS QUADRANGULATA, Michx.

The Blue Ash of North America. One of the tallest of the Ashes, 70 feet high, with an excellent timber.

FRAXINUS VIRIDIS, Mich.

The Green Ash of North America. Height 70 feet; wood excellent.

GLEDITSCHIA TRIACANTHOS, L.

The deciduous Honey Locust tree of North America. Height up to 80 feet. Wood hard, coarse-grained, fissile. Sown closely, this plant forms impenetrable, thorny, not readily combustible hedges. An allied species the *G. horida*, Wild. in East Asia. The Water Locust Tree of North America (*Gleditschia monosperma*, Walt.), will grow in swamps to 80 feet.

GREVILLEA ROBUSTA, Cunningh.*

Our beautiful Lawntree, indigenous to the subtropical part of East Australia, 100 feet high, of rather rapid growth, and resisting drought in a remarkable degree; hence one of the most eligible trees for desert-culture. Our cultivated trees yield now already an ample supply of seeds. The wood is valued particularly for staves of casks.

GUEVINA AVELLANA, Molina (*Quadria heterophylla*, R. & P.)

The evergreen Hazel tree of Chili, growing

[24] In dry, rich soil this tree makes a very rapid growth in Pennsylvania. We have frequently seen it make five feet a year. In poor soils it will remain for years with scarcely any growth.

as far as 30° S. It attains a height of 30 feet, and yields the Hazel nuts of S. America.

GYMNOCLADUS CANADENSIS, Lamark.

The Chirot. A North American timber and avenue tree, attaining a height of 80 feet; allied to Gleditschia, but, as the name implies, thornless. The wood is strong, tough, compact, fine-grained, and assumes a rosy color. (25).

JUGLANS CINEREA, L.*

The Butternut tree of N. America. About 50 feet high; stem-diameter 4 feet. Likes rocky places in rich forests. Wood lighter than that of the Black Walnut, durable and free from attacks of insects.

JUGLANS NIGRA, L.*

Black Walnut tree. Attains height of 70 feet; trunk 4 feet in diameter; found in rich forest land in N. America. Wood purplish brown, turning dark with age, strong, tough, not liable to warp or to split; not attacked by insects. Seed more oily than the European Walnut.

JUGLANS REGIA, L.*

The ordinary Walnut tree of Europe, but of Central Asiatic origin; it attains a height of fully 80 feet, and lives many centuries. Wood light and tough, much sought for gun-stocks, furniture and other things. The shells of the nut yield black pigmt. Trees of choice quality of wood have been sold for £600, the wood being the most valuable of middle Europe. Can be grown in cold localities, as it lives at 2000 feet elevation in middle Europe. The Californian Walnut tree (*Juglans rupestris*, Engelman) and the Chinese Walnut tree (*Juglans Mandchurica*, Maxim.) ought to be introduced here.

[25] Dr. Mueller probably misapprehends the derivation of the name. The "naked branches" implied by the Greek botanical name *Gymnocladus* refers doubtless to the want of *branchlets* in this tree. The terminal growth barely matures here in the fall, and hence the point dies, and cannot continue the growth next season. The first and second bud below the apex only pushes, and thus a fork of two branches only is made at the end of each annual growth. Thus the tree has a very naked appearance for many years; and we suppose the name refers to this. If it were not for the failure of the terminal bud in Gymnocladus to mature, and it was able to continue growth in the future from the apex, say like an Ash or a Horse Chestnut, we believe we should have the singular appearance among dicotyledenous trees of one long upright pole, without any side branches.

EDITORIAL.

ABOUT COLD GRAPERIES.

The culture of the foreign grape under glass, although requiring much skill and experience if the highest success be desired, is yet comparatively easy when in the hands of intelligent men who have not had the best of horticultural education. If one wish for the highest success, and will be satisfied with grapes which will always take the first premium, he will most likely engage the best of skill to design the house, make the borders, plant the vines, and take care of its subsequent history. But there are many persons in moderate circumstances who cannot afford heavy outlays for first-class advice, who may yet have pretty fair grapes under their own management, or by the help of a handy man.

For such we offer a few words, and in the first place, as to location. Aspect is of very little consequence, but east or west we should prefer. The chief thing is to have a thoroughly dry soil. We mean by this, one in which the water will pass rapidly away after every heavy rain. In first class gardens this is accomplished by underdraining, but a cheaper way for poor folks is, to select a piece of ground naturally rolling, or if this cannot be, than to elevate the bed a little above the surface of the ground, then there will be no necessity to go below it. This is often indeed found to be the best plan, even for the best Gardeners, as even with the best of care in underdraining it is found that the soil is cold and damp, and then the grape does not do well. In some of the best grape growing gardens of England, after much expense has been gone to in underdraning, it has still been found of advantage to make a bottom of concrete, about 18 inches from the surface, so as to prevent the roots from going to a greater depth than this.

Having selected the location, soil for the border is the next thing. It used to be a fashion to look after carcasses or other very rich matters to bury in the grape borders, and even yet one who

starts a vinery for the first time, is very apt to inquire if bones or bone dust are not good articles to put in the grape border. This has met with much ridicule from many of the modern practitioners. In truth the grape likes rich soil and good feeding, and provided the roots are kept healthy, the grape border may be highly manured. We say provided the roots can be kept healthy, for as soon as a vine becomes sickly, the richer the soil the worse the plant will get. If for instance by too much stagnant water in the soil, young fibres rot, the injury will be greater in rich soil than in a poorer one. Our choice for a grape border would be the top soil, about three or four inches thick, of any old grassy piece of ground, which should have about one-fifth part of stable manure mixed with it, and thus suffered to remain a year in a heap to rot before using.

In regard to the house itself, piers may be built up at the four corners, and at certain distances between to support a stout and heavy wall plate; or substantial posts, well seasoned with tar may be planted; or still more desirable if it can be afforded, a stout wall of stone or brick as a foundation for the plate. Some go to the expense of making arches in the wall for the roots to go in under the house, but this is not necessary. The roots do well enough when wholly in the border outside. The plates thus laid, the house can be built on them, that is the house is not built with movable sashes, but sash bars are built on the wall plates to the roof. The house is in fact but one sash. This is what is now known as the fixed roof principle, as opposed to movable sashes. The strength of these sash bars will depend in a great measure on the pitch. The steeper this is the lighter the bars may be. An angle of 45° is the steepest pitch employed, but it makes a very strong and substantial house. There are many advantages in favor of flat roofs, but in the long run a tolerably steep pitch will be found the best. About every five or six feet one of the sash bars should be of rafter size, three by four at least, so as to give strength to the house, and also in order to have places into which to fasten the wires on which the vines are to be trained. The vines are to be subsequently planted beneath each of these rafters.

In such a house as we have in our mind, it would be a span roofed house, that is one like a V inverted with the two ends resting just above the vine borders, which borders are to extend about fifteen or twenty feet from the outside of the house. Some little arrangements will have to be made for ventilation in the highest points of the roof, but none need be made at the sides near the ground.

Of course there are some matters of detail, which would have to be thought out before one could go on with a vinery; but our object is chiefly to suggest that these houses might be much more frequent than they are, and at a much less cost than is usually imagined; and we suppose that the general outlines we have given, will enable those who may feel inclined to try them, to study out pretty nearly what they would cost in their various localities. For a few hundred dollars it will be found that these very enjoyable adjuncts to a garden may be had in the place of as many thousands, as is generally supposed.

RAISING NEW SEEDLING FRUITS.

Most of the reflecting minds of the day admit that there is much in the views propounded by Mr. Darwin, which commands respect. Indeed those men of science, who in some form or other, hold the doctrines of evolution, are the most successful in advancing a real knowledge of nature. Yet there are some things in Horticulture which do not accord with the doctrines of these eminent men.

If we take our florists' flowers, say the Carnation, Auricula, or a Polyanthus for instance, we find progress go only in certain directions, and then stop. Size is gained over the wild flower, but the limit of size is soon reached; so also of peculiar form of petals, or any one character which commends itself to the florist. After a few years, we find we go with improvements as far as we can; if we would do more, we must go back and begin again. We could not get larger, sweeter, rarer colored carnations; but by going back to the original and working in a new direction, we have obtained some that will grow long and leggy, and which will produce flowers all the year through. These are the perpetual bloomers or tree carnations. But from these we could not produce a race which would run on the ground and root at the joints. If such a thing could be done, or would be desirable, the florist would have to go back to some original form and work from that. Improvement seems like a wheel. We cannot do much by lengthening the spokes; if we would make the wheel different, it would rather be by making new spokes radiate from the hub. There is a line beyond which our improvement spoke does not seem inclined to go.

Fruits are in the same way. We think we have strawberries larger and finer than we had a hundred years ago. The ancients surely had no pear as good as the Seckel, or apples as generally fine as the Baldwin, or as handsome as the Lawver; but we do not know but that they might if they had tried. A people just emerging from the life of the forest and the chase, with no knowledge or disposition to care for Horticultural pursuits, could not see any chance variety of fruit if it occurred; or if it were found, not one in a thousand knew anything about grafting or budding; and when that one was found, he could not write to place his discovery on record; or if he could do any of these, there was little intercourse between one part of the country and another to make his discovery known beyond where it grew. There is in fact, every reason for believing that if the same class of observers with the same analyzing influences as now prevail, had existed two thousand years ago, the same good fruit we have they would have had; while we should have no better than we now have for all this long period of improvement which preceded us. Two thousand years may yet come after us, and, as we believe, there will still be no larger Strawberries, no richer Pears, no handsomer Apples than any we have at the present time. How it is when observers drop away, we see in our own times. While that noble minded pomologist, Dr. W. D. Brinckle lived, and his enthusiasm in the cause was almost boundless, scarcely a month passed that he did not add some new and excellent fruit to our lists. He did not raise them. No new or obscure natural law was brightened up for him; but woods, fences, old graveyards and forsaken old nooks were ransacked, and their hidden treasures brought to light. Our public spirited friend passed away, and the sun of novel fruits set with his life. Now and then one makes its appearance, but the novelties do not betoken a very productive age.

We make these remarks in the interest of Pomology. An idea prevails that a great amount of knowledge and skill is required to produce a new fruit. But in truth no one need spend many sleepless nights, or write odes to the "midnight oil!" lost in the cause. A beautiful science, built up as Mr. Darwin has built it, we fear will not give us many new and good fruits. But we like variety, if even no great improvement. Moreover, at times varieties do not last long,—they go back if they do not improve, and we want others to take their places. Let people watch their wildlings, something good will come from them. Nay let them try and raise new ones; but not by selecting from the best, but by taking some half wild thing, but with robust healthy habit, and improve from that.

EFFECTS OF THE WINTER ON HARDY EVERGREENS.

The past winter has been very trying to vegetation here in the Eastern States. The absolute degree of cold has not been remarkable. There have been winters when the thermometer was much lower, and vegetation less injured than it is now. The hardiest Evergreens like Hemlock, Spruce and Balsam Fir, have suffered severely. Scarcely anything in the way of evergreens indeed but what has been injured wherever exposed to wind. There have however, been no winds of extra severity this winter, but there has been an unusual absence of moisture in the atmosphere, and it is this dry wind which has done the damage. We suppose it is pretty well known by this time that death in the winter time operates in two distinct ways. In one case the water in the plant expands by the frost. The cells then burst, as water frozen in a bottle bursts the vessel. In other cases the plant has the power to retain heat enough to prevent its liquids from freezing, but these are evaporated faster than the partially inactive roots can supply the waste. In this last case the plant dries up just as it would do under a hot summer's sun. This is the kind of death which overtakes these usually hardy things. The dry cold winds draw out the moisture, and the most twiggy branches perish.

Our eastern friends tell those of the west that they should plant shelter belts in their treeless regions; but experience in the east this winter teaches that here also, shelter belts are necessary.

It will soon be a recognized principle in the planting of all places in the northern and middle states, that a belt of trees on the windy side is one of the essentials.

THE GRAPE ROOT INSECT.

A couple of years ago we noticed in the foreign notices of the *Gardener's Monthly*, that M. Planchon, of Montpelier in France, had discovered a new trouble with the vines in France, compared to which the old *Oidium Tuckeri* was, as the

family physician would say, a mere "flea bite." It was that a minute insect, the *Phylloxera vastatrix*, existed in immense numbers on the roots of vines, and that the greater part of vine failures was to be attributed to their ravages. It was found that these insects had epicurean tastes, and that they did not feed on the roots of the American species. It was hoped that by grafting the European vines on this stock, they would be thus able to outgeneral this new enemy.

Our own distinguished entomologist, C. V. Riley, after a visit to Europe last year, became satisfied that the fright amongst grape growers which the discovery of this insect instigated, was well founded; and on his return to this country, examined American vines, and found the insects here as well as in Europe. He has no doubt that disease follows their attacks here as well as in other countries. They do prefer some kinds to others however, and the Concord does not seem so much a favorite as some others. They will live on the roots, and undergo all their transformations under the surface of the ground; though they sometimes attack the leaves underneath and thus form small tent-like eruptions on the upper surface.

Mr. Riley gave, some time ago, a very detailed account of this insect and its doings, in the *Rural New Yorker*, but it does not seem to have induced our people to believe it the terrible foe to the grape grower we imagine it is to become. We can see the Colorado potato beetle at work, and thus better understand the terrible havoc it makes; but this little mite, and below the ground also, we have to take pretty much on faith in our operations against it. There is little doubt but it will take all our ingenuity and "Yankee shrewdness" to overcome it.

In France an experimenter has found that if the roots be immersed in water for some few days, the insect can be drowned. Even this is a valuable beginning in the campaign against it. One cannot of course immerse a grape vine root when growing, as even a few hours of water at that time is destructive to the grape as well as to most terrestrial trees; but some localities could be flooded in the winter time, when the plant is comparatively at rest, for many weeks without the slightest injury. Besides this we can prevent the introduction of the insect into new neighborhoods by soaking the young plants in water before they are planted for a few days.

As we have said, this insect is so insignificant and so hidden, that few but the most intelligent of our cultivators will be able to appreciate the vastness of its operations. It will be like the fungoid diseases of plants, which has taken nearly half a century of waiting for people of whom scarcely a tithe believe in or care about it yet. It would be a good point if those who can will get specimens and exhibit magnified illustrations of the insect and its doings, for lectures and addresses at our Pomological meetings and Farmers Clubs.

SCRAPS AND QUERIES.

THE LAST OF THE LOUDONS.—The Horticultural world owes much to the labors of Loudon. To this day his works furnish us with the best histories of the trees and plants of this time. In connection with this great author, the death of his only brother recently, has an interest. The family in so far as the name is concerned, is now extinct. His only daughter we believe is still living.

SUGAR FROM THE ASH LEAVED MAPLE.—We have noticed that sugar is made from this tree. This season we believe a good deal has been made of it in the west. Do any of our readers know of the comparative product of this with the common sugar maple?

JERUSALEM ARTICHOKE.—*R. M. T., Utica N. Y.*—"I have been asked by a neighbor to join with him in purchasing a stock of these to plant as a cheap and excellent crop for cattle feed through the winter. It is represented as hardy, and yielding 200 bushels to the acre. But I am afraid that anything from so warm a latitude as Jerusalem will not prove hardy in our climate."

[The "Jerusalem" Artichoke is not a native of Jerusalem, but of the American Continent. It is a sort of sun flower, with roots in appearance between a Dahlia and the common Potato. Its name is supposed to be a corruption of a French word which sounded to English ears like "Jerusalem."

It is quite hardy, and it may make good hog

feed. It may even produce 200 bushels to the acre of roots; but we do not know whether 70 bushels of corn *and* the fodder would not be more profitable,—the corn for the hogs and the fodder for the cows,—than the 200 bushels of these roots. The tops of the Artichokes are of no use for fodder or anything else. However on this we are not asked for an opinion.]

BEET SUGAR IN COLORADO.—The yield of sugar by the beet at Denver, is very large. It has been noted that there is more grape sugar in that root in dry seasons than in wet ones, and the dry climate of the eastern slope of the Rocky Mountains, is favorable to beet sugar. By irrigation at the proper growing time, immense crops can be raised.

PRESERVING GRAPES IN BOTTLES.—Some time ago we noted that an English gardener cut his grapes with long stalks and kept the bunch with this stem in a bottle of water, in a cool place long into the winter months. We note that this plan is meeting with continued praise.

BLUE GLASS.—*C. W. R.. Baltimore, Md.*, says:—I think the editor ought to come out and say Gen. Pleasanton's colored glass article is sound and true, or something else. I was on the point of putting $50 or $100 in it, but I happened to notice that Mr. M. admitted a scathing notice of the article, but did not say one commendatory word, and I began to hold up in my admiration.

How many have been *misled* by that article, if fallacious, how many would gladly adopt the plan if safe and certain, no one can tell?

[It never seemed necessary to say anything about the blue glass theory. Our correspondent so fully exposed the fallacy of the figures on which Gen. Pleasanton relied, that no attempt in reply has since been made to sustain the theory; for of course if the results supposed to be produced by the blue glass were not produced, it is of no avail to discuss the theory. There is no doubt but that excellent grapes were produced in the grapery; but no more excellent than others which have been raised without blue glass. In our opinion, much more credit was due to Mr. Waters, the General's gardener, than to his glass. Last year's gardener has not done so well, and even blue glass has not made up for the new gardener's lack of skill. Our readers will remember in past years' volumes of the *Gardener's Monthly*, that repeated accounts appeared of the wonderful crops of grapes in Mr. Yarnall's graperies, when Mr. Mathison was gardener there. This is not very far from Gen. Pleasanton's. There was no blue glass here.

Gen. Pleasanton deserves much praise for his experiments, and much can be learned from them. Indeed the *Gardener's Monthly* was amongst the first to give a full account of the paper on the subject; but Gen. Pleasanton is an earnest seeker of truth, as well an enthusiastic grape grower, and we are quite sure is as glad to have any weak points in his theory as fully set forth, as he would be to have credit for any real discovery that may result from his labors.

Although we do not believe the good results came from blue glass, we hope those who have the means and the time, will continue their experiments in this direction.]

SMALL CONSERVATORIES.—*P. R., Cincinnati*, writes:—"As one of your readers of the *Gardener's Monthly*, please allow me to ask you a favor through your valuable *Monthly*, which may at the same time be very acceptable to others, whose means like mine are but small; yet would like to have the pleasure of a small greenhouse, so as to have flowers during the long winter months. I would like to build a small lean-to greenhouse attached to my kitchen, for convenience during winter; as I could enter the greenhouse by a door from the kitchen, and likewise heat it from the kitchen, provided, that it could be done. The house can be about ten or eleven feet wide, the north end joining to the kitchen, which is a frame, with no cellar under it. The length can be sixteen or eighteen feet, running north and south. It must be built in the most economical way. Now how am I to go about it? Have I to build of brick or wood? If of wood, how must it be done? Can I heat the house from the kitchen stove, or must I have a flue or extra furnace? How is this to be done? And what will be the best interior arrangement? Could it also be so arranged that I could have a few grape vines growing in the house during summer? And if so, what kinds will suit best and require the least attention, as my knowledge of grape growing is but limited. For the practical information as to such a house through your valuable *Monthly*, I think not only I, but many others, to whom perhaps like myself, "flowers and vines" have been inseparable companions during many years of poor health will be much obliged. But thank God my health is at present as good as ever it

has been, and therefore I would like, if the expense and care of such a small house will allow, to still more cultivate the acquaintance of my dear and innocent little friends for the future."

[For a plant house of this nature, a lean-to structure is the best, that is, one with a single slope from your house down. The exact form best suited to your case could scarcely be given without seeing the place, but we should suppose the best thing to do would be to make the foundation of stone, then about 18 inches of brick work, and on this have upright sash of about two feet for your small house. The glass roof would then extend from the dwelling house down to the top of this upright side sash. Any carpenter would understand this by looking at another house, of which Cincinnati will afford examples. The inside arrangement will also depend on the character of the location. The heating of these small plant houses is generally the most difficult part of the business. It is not often that a connection with kitchen furnaces is satisfactory. It is best to put the plant house in the warmest and most sheltered side of the house; have shutters made to put on in cold weather, and thus made warm by coverings, the opening of the door of the dwelling room will be sufficient to keep the frost out. But where the plant house is to be more than ten feet long, it is far preferable to have a small fire grate made purposely for it.]

GROWTH OF PLANTS IN FROSTY WEATHER.—*R. G., Alleghany City*, writes:—"Near my stable is quite a large patch of Docks, which have come up where an armful of stalks collected from a meadow were thrown down a year or so ago. The sun shines on the ground all the fore part of the morning. I had occasion to dig near there recently, and found the ground frozen two feet thick at least. During our recent warmish weather these Docks have pushed up leaves, and are now perhaps three inches above the ground. Yet the ground is frozen solid. It has not thawed half an inch where these Docks are through the grass shading the ground. How can these tops grow as they do while the roots are thus frozen solid? My gardener was preparing a hot bed near where these Docks were growing, in order, as he says, to have "bottom heat." But he does not answer my question, "how do these Docks grow without bottom heat?" Will you please tell us?"

[It is a popular fallacy that roots *freeze*. The sap in plants, like the blood in animals, cannot freeze, and the plant or animal at the same time retain life. The Dock roots are not frozen, though the earth all about them may be. The internal heat of the roots thaw enough moisture from the frozen earth to carry on growth, when the warmth of the atmosphere excites the plant to vigorous action. We have seen excellent grapes forced in hot-houses when the borders outside in which the roots were, were frozen solid,—just as good grapes indeed as if the borders were not frozen.

The *Gardener's Monthly* has stood almost alone in exposing this common error about roots freezing and not acting in winter. You have probably not been a reader "from the first," as most of our old readers must be acquainted with this fact by this time.

In regard to bottom heat in hot-beds, we need not discuss that here. It has been found of benefit in many instances; but not for the reasons usually given. It is not so much the heat as other things.]

SWINDLING IN NEW YORK.—The New York papers are full of the doings of "Lafayette & Co.," who will sell you anything the most poetic fancy can desire. Our readers need no warning, as we are sure no one of them will invest in a "blue moss rose," or any such ridiculous thing. If they do, we have no sympathy for them. It is however strange that a swindle so open and so bold should be allowed to exist in New York. Is there no room at Sing Sing? Or what is the matter?

It is rather hard on our brother of the *Horticulturist* that his immediate constituents should not be better taught than to go after these strange gods.

PRINCIPLE IN FRUIT CULTURE.—A correspondent of the *Fruit Recorder* thinks the teachings of the *Gardener's Monthly* contradictory, and instances that sometimes we have recommended fruit trees to be in grass, sometimes to have them mulched, and sometimes the ground kept surface cleaned. This is true. We have endeavored to lead our readers to believe that circumstances alter cases, and that there is no rule in gardening that will always apply. But we have been ever consistent in this, that food is best applied near the surface; that feeding roots should be encouraged near the surface, and that the surface should be cool. This is our one great object. Consistent in this, we claim no consist-

ency in the means to obtain it. Where it is done better by clean surface than grass, then we favor clean culture.

How Dew is Formed.—*M. J., West Philadelphia*, writes:—"If not troubling you with too many questions, will you give me your opinion of the theory advanced by Prof. Wells, that dew is the result of air of two temperatures meeting? He regards that a plant during the day becomes heated to the same temperature as the air, and thus the cold night air, striking against the heated leaf blade causes a dew deposit."

[We do not know who Prof. Wells is or the nature of the theory, but if as you say, his "theory" is an absurdity. The specific heat of a plant never changes any more than the specific heat of an animal, unless it is diseased. Dew is caused by the cold temperature of the night air meeting a warmer current or strata from the earth, which makes a small species of fog cloud, and which deposits its condensed vapor in living and dead things; things of one temperature and things of another, just as a shower of rain would do. Dew is in fact but a minor variety of rain. The same law operates in the one case as in the other, only more intensely in the rain case.]

The Best Strawberry.—*M. B., Rodenton, N. J.*, says:—"I am at a loss to know what is the best variety of strawberry for this part of New Jersey. The soil is a sandy clay, though rather inclining to the latter than the former."

[There is no more difficult question to answer than this. The vote of the whole United States would be in favor of the Albany Seedling. Some because it bears abundantly; some because it bears anywhere in sand or in clay; and some because the peculiar tartness when plenty of sugar is used with it, is agreeable to them. But there are others who are willing to sacrifice some of these peculiar advantages for the sake of a large handsome berry, with a pleasing aroma and sweeter taste. These people prefer Jucunda or Triomphe de Gand, Napoleon III. Charles Downing and Agriculturist also have merits which commend them highly to various growers. From your letter we judge you want them for your own use and not for marketing, and some of the last named will probably please you best.]

Double Lilac Primrose.—*M. J., West Philadelphia*, says:—"I have heard that there is a double blue or lilac English Primrose, similar to the double white, now so common in use for winter flowering. Is it so, and are they for sale?"

[It is a very old but scarce variety. We notice them in Mr. Saul's Catalogue, but in no other, though no doubt other firms have them.]

Wild Celery.—We have the following obliging note from Mr. Charles E. Smith, in response to the inquiry, what plant is it on which the Canvass Back Duck feeds, and which imparts so agreeable a flavor to its flesh?

"In reply to your query in the April number of the *Gardener's Monthly* as to the name of the plant which is called Wild Celery, and furnishes the chief food of the Canvass Back Duck in the waters of the Chesapeake, I have frequently heard it said that it is *Vallisneria spiralis*.

It also grows in the river Delaware, where it is generally called eel grass."

The Season in Louisiana.—*J. H. S., of Alexandria, La.*, under date of April 9th, sends us the following encouraging account of things:

Spring work very backward, from rains. No frosts to hurt anything. Compared with last year, there has been but a small crop of fruit set, except the Blackberry. I refer particularly to the Peach, Pear and Apple. These fruits are most troubled with respectively, the worm, the blight, and the white aphis or woolly aphis. I trim the diseased trees severely and use wood ashes around the collar. I have some success, for I manage to grow some fruit, and a little is vastly better than none.

I wish you continued, and even greater prosperity. Would be glad to receive the *Monthly* every *week*.

Non-Flowering of an Oleander.—*Mrs. M. T. W., Mansfield, Tioga, Co., Pa.*, writes: "Please inform me through the *Monthly*, how my Oleander can be made to bloom, usually it has a profusion of clusters of fresh young buds, giving promise of future beauty, but there it ends, the flowers do not appear."

[The Oleander requires a rich soil, and a light sunny place, with plenty of water; but yet the soil must allow of the water passing rapidly away, through to the bottom of the tub or pot. Most likely your tub is very full of roots, and the water does not soak through; the buds are very likely to drop before opening under such circumstances.]

Plants in bloom in the Greenhouse at Rhoeynmynydd, the suburban residence of J. P. Jones, Esq., Blockley, West Philadelphia.

FEBRUARY.

Abutilon	striatum,	mallow (Indian),
	vexillarium	
	Thomphsonianum	
Acacia	undulata	
	pubescens	
	pulchella	
Ageratum	coelestinum,	Blue Mist
	variegatum	
Allium	Neapolitanum,	Garlic (Italian)
Azalea	Chinensis 7 var.	
Camellia	Japonica 8 var.	
Cineraria	Kingii,	Ragwort
Coronilla	glauca varieagata,	Scorpion Senna
Cuphea	platycentra,	Cigar Flower
Cypripedium	venusta,	Ladies Slipper
Erica	mediterraneana,	Heath
Gesnera	splendens	
Hyacinthus	orientalis.	Hyacinth
Justicia	purpurea,	Malabar nut
Lantana	Sellowii	
Lachenalia	tricolor	
Libonia	floribunda	
Lopezia	rosea	
Mahernia	bicolor	
Oxalis	floribunda,	Wood sorrell
Poinsetta	pulcherrima	
Primula	sinensis,	Primrose (Chinese)
	alba pleno	
Rosa	Banksii alba,	Rose
Rubus	fruticosus pomponius,	Bramble
	Japonica fl. pl.	
Salvia	coccinea,	Sage (Scarlet)
	splendens	
	gesneraeflora	
Sparmannia	africana	
Siphocampylos	bicolor	
Tropeolum	Lobbianum,	Indian Cress
Ulex	Europaea fl. pl.,	Furze

COLD FRAME.

Bellis	perrennis,	Daisy (double)
Helleborus	niger,	Hellebore
Viola	odorata,	violet (double)
	purpurea pl.	
	Neapolitan	

MARCH.

Abutilon	striatum,	mallow (Indian)
	Thompsonianum	
	vexiliarium	
Acacia	pubescens,	Wattle Tree
	pulchella	
	undulata	
Allium	Neapolitanum,	Garlic (Italian)
Albuca	viridiflora,	Star of Bethlehem (Bastar)
Alyssum	maritimum,	Madwort
Ageratum	Coeruleum,	Blue Mist
	variegata	
Azalea	Indica alba	
	ardens	
	Beauty of Europe	
	Bride	
	Double red	
	obtusa	
	phoenicea	
	Van Geertiana	
	Williamsii	
Camellia	Japonica,	imbricata alba
	Sarah Frost	
Cineraria	Kingii,	Ragwort
Cuphea	platycentra,	Cigar flower
Cypripedium	venusta,	Ladies Slipper
Erica	mediterraneana,	Heath
Eriostemon	neriifolium	
Gesneria	splendens	
Goldfussia	isophylla	
Habrothamnus	elegans	
Hyacinthus	orientalis,	Hyacinth
Justicia	purpurea,	Malabar nut
Lachenalia	tricolor	
Lantana	Sellowii	
Libonia	florabunda	
Lopezia	rosea	
Mahernia	odorata	
Pelargonium	quercifolium,	Stork's bill
Pittosporum	tobira variagata	
Poinsetta	pulcherrima	
Primula	sinensis,	Primrose (Chinese)
	fl. alba pl.	
Reseda	odorata,	Mignonette
Richardia	ethiopica,	Lily of the Nile
	major	
	minor	
Rosa	Banksii alba, Rose, Lady Banks	
Rubus	fruticosus pomponius,	Bramble
	Japonica fl. pl.	
Salvia	coccinea,	Sage (scarlet)
	gesneraefolia	
	rosea	
	splendens	
Siphocampylos	bicolor	
Sparmannia	Africana	
Tropeolum	Lobbiana,	(Indian Cress)
Ulex	Europaea fl. pl.,	Furze

Crow Black Birds, (Quiscalus versicolor), appeared on the 17th inst., accompanied by the

Marsh Blackbird, (Agelaius phoeniceus), also Robins, (Turdus migratorius), Bluebirds, (Tialis Wilsonii), appeared in the same week about their old breeding places.

The Snowbirds, (Niphaea hyemalis), still remain with us to enliven the cold winter weather we are having, by their chuckling music as they gather together in the evenings to roost in the Ivy (Hedra helix) around the porch or in the shrubbery.

CARBOLIC ACID SOAP.—*B., Springfield, Ills.* "You will oblige an original subscriber if you will state what you know of the efficacy of this new article as a destroyer of insects."

[Carbolic Acid Soap has been found a very useful aid in destroying insects.]

LATIN NAMES FOR VARIETIES.—*A. B. B., Princeton, N. J.*, says: "I wish you would "pitch into" the florists, seedsmen, &c., in the *Monthly*. They have really mixed up names so that it is often hard to find out whether a plant is a species, in the ordinary acceptation of the term, or an artificial variety. Somebody finds a distinct form of Bouvardia among a lot of root-cuttings, and straight way, out it comes as *B. Vreelandii*, or something else equally absurd. There are plenty of names without touching on Botany, but some people seem to think a thing is nothing if not latin. Suppose the Pear "Manning's Elizabeth" should be sent out as "*Pyrus Elizabethae*," it would be considered as a ridiculous affectation, and yet it is no more absurd than dozens of names already in use. Add to this the fact that in so many cases the names are misapplied through ignorance of latin, and the case is still worse. I recall an instance just now. Peter Henderson has called a Verbena, (a very handsome one by the by), *V. monstrosa superba*, now "monstrosus," does not mean "monstrous" in one English sense of the word, but literally, "like a monster," "unnatural," and our friend Mr. H, certainly did not mean to call his plant a "superb monster;" he only wished to convey an idea of large size. As to the binomial system, they (florists) seem to hold it in utter contempt. A short time since I received a package of seed, with the following name, from England, at least it came from there, as also the name, viz: "*Ipomea hederacea, alba, atrocarminea, lutea, alba.*" His brother came with him, but he has only five names, and so is not of much account. I planted them in the greenhouse and they have come up, but whether they will ever be able to climb with such a weight is questionable."

HORTICULTURE IN ST. LOUIS.—A correspondent gives us a cheering account of the improving Horticultural taste of St. Louis.

PETTIGREW & REID.—A *Geneva, Ills.*, correspondent says of these burned out Chicagoans: "I was pleased you noticed the firm of Pettigrew & Reid, in the last number. Now from what I know of these men, I can safely say that they are intelligent, sober and industrious young men, and had a fine stock of plants before the great fire, but everything was consumed. Now what I want to suggest to you is this; give a call for aid through the *Monthly* to the Florists of the country, to help to set these young men on their feet again. A few dollars in money or plants will not be missed out of our abundance, but will be of great service to them."

VARIETIES OF SCOTCH PINE.—*P. H. F.*, writes: "John Gregor says, there are many varieties of the Scotch Fir not to be found in the best native woods of Scotland, as that alone is the genuine *red wood Scotch Fir*. I suppose you have Gregor's Arboriculture, and remember what he says about it."

[In every location after a series of years, the qualities of timber seems to vary, just as butter will be better in some districts, or the flesh of birds and animals vary in eating qualities according to what they feed on in the districts where found. There is no certainty that these qualities will remain long when the trees or the animal are removed to other districts. Still the "habit" often long continues, both in trees and animals, and we should always prefer seed from the best locations.]

SEEDLING CAMELLIAS.—*Mr. J. Feast, Baltimore*, writes: "I enclose a few of seedling Camellias, which perhaps may be interesting to you, Mr. Meehan, which I would like you to see, or any interested in plants. Having devoted much time of over forty years to hybridizing, and perhaps have raised more good things than any one in this country, of different kinds of plants.

The cultivation of the Camellia is not generally understood by any gardener in this country; of bestowing too much care on them. They are the hardiest plants in cultivation, and should be treated as such as Greenhouse plants, by keep-

ing at the lowest temperature; having had my collection frozen several times every winter, and never loose any buds. I enclose a few leaves to show you the health they are in, which same made growth of over three feet last year in pots."

[These were remarkably beautiful, and excellent additions to an already large list of varieties. In the past generation of Florists, much care was given to raising new Camellias. It is gratifying to note that the fire still burns.]

LARGE SOUTHERN PEACHES.—The *Rural Carolinian* has an engraving of Troth's Early Red Peach, which is three and a half inches in diameter This is remarkably fine, and we suppose larger than the same variety can be grown further north.

PORTRAIT OF COL. M. P. WILDER.—The London *Gardener's Chronicle* of April 6th, has an excellent portrait of President Wilder and a very full account of his life and public services. The *Chronicle* could not have selected a representative Horticulturist whom Americans more delight to honor.

NATIVE PLANTS.—*Mr. Fish, of North Vineland*, says in his Catalogue: "I introduce with pleasure the list of native plants of South Jersey, found in the latter part of this Catalogue. Some are rare and local ones. Many of them are Real Gems, worthy the attention alike of the Amateur Florist, and the Scientific Botanist. That narrow prejudice which once pervaded the rural people, and caused them to regard any tree or plant, however beautiful, if found growing wild as unworthy of notice for that reason alone, is now happily nearly obsolete. And hence it is a more favorable time than heretofore for introducing our beautifully modest and graceful, but neglected friends. Native plants, either for use or ornament, being adapted to our soil and climate, other things being equal, will flourish best and give great satisfaction. It would seem that it ought to be too late in our career as a nation in attainments of science, art and taste, for us to import our American plants from Europe, and allow Eastern Florists to send us the main mass of improved varieties in our own native Flora."

KEEPING CUTTINGS IN ICE-HOUSES.—A correspondent says: "Is burying last year's cuttings for summer grafting, better than keeping them in boxes or an ice-house?"

[Those referred to in our former article, kept as well as desirable in the open ground. We have had no experience with cuttings in ice.]

BURYING CUTTINGS FOR SUMMER GRAFTING.—In reference to a recent note, a correspondent asks: "How deep must they be kept to keep them from germinating?"

[Those we had reference to were Pears and Cherries. They were buried the whole length of the pieces, an inch or so of the tops being left above the ground, much as a lot of grape cuttings would be.]

QUANTITY OF BEETS TO THE ACRE.—A correspondent of *Gardener's Chronicle* says that he grew 50 tons of Sutton's Long Red Mangel to the acre, and that some of the roots weighed 30 lbs. each.

BOTANICAL CLASSIFICATION.—*D., Philadelphia*, says: "Will you oblige a botanical student by recommending some recent comprehensive botanical work, (English), which embraces the entire vegetable kingdom, with all the latest changes, improvements, &c., in classification and nomenclature?

I have both Gray & Wood's botanical works, but they are not sufficiently comprehensive. I have also, Paxton's Botanical Dictionary, an excellent and favorite work.

I have in my possession the plant Lechenaultia. According to Paxton, it belongs to the order Goodeniaceæ; yet neither Gray nor Wood name the plant or even the order. The plant Mastynia, Gray and Wood call a Bignoniad, but Paxton calls it a Pedaliad,—another order not named by our American authors, and so in numerous cases. As this leads to confusion and uncertainty, I would like a work, which in its classification and nomenclature, corresponds with that adopted by Paxton in his recent dictionary."

[Baillo's History of Plants seems to be the best accepted work on classification at present. It is French, but a translation is now going through the English press. Lindley's *Vegetable Kingdom* is a good work of the past, still useful in the present; but there are so many continual discoveries in Botany, that changes necessarily occur, such as our correspondent speaks of, as new facts are evolved.]

HARDINESS OF AMERICAN RAISED SEEDLINGS ARBORVITÆ.—*Mr. P. H. Foster, Babylon*,

L. I., says: "I wish to inform you, and would like to have you publish the fact in the *Gardener's Monthly*, for the benefit of American readers, that the Chinese Arborvitæ, or Biota orientalis, raised from seed grown at my Nursery, proves this severe winter entirely hardy, while that from European seed is killed outright, growing side by side in the open field. This proves to my mind, that raising seeds of some half hardy plants, and planting them on the same soil, they become more hardy. The above hardy B. O. were raised from seed of trees, of which I planted the seed on these grounds."

INSECTS ON CHERRY TREES.—*W. H. E., Hamburgh, N. J.*, writes: "I am a subscriber and constant reader of the *Gardener's Monthly*. I have a lot of various kinds of budded and grafted Cherries, which are just beginning to bear, but I fear will be killed by an insect, which commences its ravages on the under sides of the leaves, causing them first to curl, then there will be thousands of little creeping insects, (I call them lice). I notice the ant on the leaf and around these insects. Are they the cause, and is there any way to prevent the ant from climbing the tree, or if it is not the ant that does the harm, what is it, and is there any remedy? Is there any way to save the Plumb from being destroyed? In our section they get nearly full size, then they are all stung. A gummy substance oozes out; they soon all drop prematurely from the tree."

[The insect is the Black Aphis, which has long been a plague to many Cherry orchards in northern New Jersey. If the trees are not very large, they can be washed off by a strong garden engine, and if tobacco stems have been soaked in the water before using, all the better.

The Plums have been punctured by the Curculio insect. Many remedies have been tried, but the most successful practice seems to be the shaking plan. Rather low trees are employed, and one branch sawed off within a few inches of the main stem, to drive a sudden blow of the hammer on. A sheet being placed under, the insects are collected after the sudden jar has been given.]

NEW AND RARE PLANTS.

NEW LEAF PLANTS FOR 1871.—The *Gardeners' Chronicle* says: In the ornamental-leaved section of Stove plants are numerous candidates for popular favor, and the following, amongst others, seem fairly to deserve it:—Sphærogyne imperialis, a Peruvian plant, which is said to be much superior to S. latifolia, and is at any rate a noble plant, with ample foliage. Paulinia thalictrifolia, a woody stove climber, from Brazil, of quite an opposite style of beauty, being slender in growth, with beautifully cut leaves, resembling the fronds of a highly-divided Maidenhair. Maranta Masellii, which was produced at one of our summer shows, is a fine acquisition, in the way of M. illustrus, but superior to it; its ample rotundate, shining leaves have two broad silvery longitudinal bands. Of Dracænas, from the South Sea Islands we have four of great merit—D. amabilis, with green leaves, and pink and white variegation, much superior to D. Guilfoylei; D. Wiesmanni, with bronzy leaves, red at the margin, and breaking out into white variegation; D. magnifica, remarkably free-growing, with erect, bronzy leaves, having a delicate pinkish bloom on the surface; and D. splendens, a dense, dwarf plant, with recurved leaves, distinct in habit, the bronzy leaves breaking out into a rich carmine-rose. Dracæna lutescens striata, is also a distinct and elegant plant, with bold recurved yellowish green leaves, marked by dark green lines down the centre. Nepenthes Sedeni, is a pretty dwarf form of Pitcher-plant of hybrid origin, N. distillatoria being one of its parents. Dioscorea prismatica and D. aldosado are handsome climing stove herbs, with satiny richly-colored foliage, the former especially beautiful, its leaves being cordiform, of a rich green shaded with purple, with ivory-white ribs, a central silvery bar, and transverse purplish veins. Cissus albo-nitens is another graceful stove climber. In Alocasia Marshallii we have an improved form of jenningsii, on which the leaves have, besides the dark blotches, a central band of white. Xanthosoma Lindeni, a bold plant of the same family, has large, erect,

deep green leaves of a sagittatehastate figure with the principal ribs and veins ivory-white. Finally, we have to record three fine Dieffenbachias—D. imperialis, with very large dark green leaves, spotted with yellow, and a pallid midrib; D. Bowmanni, a handsome Brazilian species, with pale green leaves freely blotched with deep green in a most effective way; and D. Bausei, of nearly the same colors, but also spotted with white. These two are particularly stocky, and are perhaps the best Dieffenbachias in cultivation, D. Bausei being, moreover, an English hybrid raised at Chiswick.

NEW FERNS.—Ferns have yielded little of importance during the past year, if we except the interminable and hard-named varieties of British species, which we owe to the enthusiasm of cultivators. The Dicksonia Sellowiana, however a Tree Fern of Brazil, which has found its way to the Belgian gardens, will be a nice addition to our collections. Davallia (or Humata) Tyermanii is a charming basket Fern, from West Tropical Africa, its small deltoid tripinnate fronds and silvery-scaled rhizomes being singularly ornamental. Elaphoglossum Herminieri, christened the Eel Fern by Dr. Seemann, from the resemblance of its clustered glossy iridescent sterile fronds to clusters of silvery eels, is a good stove basket Fern; and Trichomanes auriculatum is a lovely creeping stemmed hothouse Film-fern, with transparent green narrow bipinnatifid fronds. Asplenium marinum Thompsonise and Polypodium vulgare cornubiense (or Whytei, as it is sometimes called) may be mentioned as most distinct-looking bipinnatifid varieties of the Sea Spleenwort and common Polypody respectively, which, as is well known, are normally pinnatifid only.—*Gardeners' Chronicle.*

NEW BULBS.—Amongst Bulbs of 1871, the Liliums take the first place—and deservedly so, for few of our garden flowers are more beautiful than they. L. Washingtonianum we have already figured, and we shall hope to see blooming plants exhibited in the ensuing summer. L. Maximowiczii tigrinum, and L. Roezlii, two very charming sorts—the first from Eastern Asia, the second from the Rocky Mountains,—we shall leave Mr. Baker to locate, being contents to record the fact of their having found their way to European collections. The South African Gastronema sanguineum flammeum is a charming dwarf greenhouse bulb, with linear-lanceolate leaves, and rosy-crimson flowers of great beauty. The ranks of the Gladioli, augmented a year or two since by the importation of G. cruentus, which is now yielding the fruits of hybridisation, have been still further strengthened by the acquisition of a showy yellow-flowered species, and also of G. Saundersii, which is very distinct and remarkably handsome, with scarlet flowers marked with white on the lower segments, the blossoms themselves being decurved. Finally, Xiphion—the genus of the bulbous Irises, gives us two very ornamental additions, X. filifolium, with rich violet-purple flowers, and X. junceum, the blossoms of which are of a golden yellow.

NEW HARDY TREES.—The most distinct would appear to be the the Maackia amurensis, from the valley of the Amoor, which is said to be perfectly hardy, and which forms a tree with flexuous branches, pinnate leaves formed of 3—4 pairs of ovate-oblong leaflets, and small greenish-white flowers, in long dense, spike-like racemes. The Robinia Pseud-Acacia semperflorens, if perpetual-flowering, that is, blooming on from April till autumn, as it is stated to be, will be a real acquisition in its class, the general aspect of the tree resembling that of the common Locust. The Albizzia rosea of North America is described as a handsome and floriferous small tree, the heads of long crimson stamens being very conspicuous. There is also a drooping variety of Purple Laburnum, Cytisus Adami pendulus, which is said to resemble in habit the weeping forms of Sophora japonica. Two very pretty deciduous shrubs have been secured in Cerasus Sieboldii roseo-plena and C. pendula rosea, both Japanese, the first having long pendent branches, furnished with masses of rose-colored double flowers, the second having its slender drooping branches clothed with a profusion of delicate pink blossoms. Rhus Osbeckii, another Japanese introduction, bears handsome pinnate leaves, with winged rachides; while from China has been introduced to the French gardens Philadelphus rubricaulis, a species remarkable for its violet-red bark, and its yellowish-white odoriferous flowers. The Japanese Azalea (or Rhododendron) mollis promises to yield a race of hardy Azaleas, eclipsing in beauty those obtained from A. sinensis and the North American species. It has already yielded many different tints and shapes, but the typical form bears a grand broad-lobed flower of a

golden yellow. Rosa rugosa (Regeliana), another Japanese plant, bears corymbs of large cup-shaped deep crimson flowers, looking like single Pæonies. In evergreens, one of finest acquisitions is Mr. Young's Juniperus chinensis aurea, a garden sport of one of the most useful of hardy evergreen Conifers, and differing in having the branches marked with a thoroughly fixed bright golden varegation. As a half-hardy evergreen tree of much promise we may finally mention Quercus stricta, from Japan,—a tree of pyramidal habit, with ovate-lanceolate leaves, obliquely marked with alternate bars of green and gold.—*Gardener's Chronicle.*

According to M. Carriere Tamarix plumosa is one of the prettiest of shrubs, the multiplicity and the fineness of its branches giving it a most graceful appearance, and gaining for it the common name of Marabout, in allusion to its feathery character. The plant, he states, is more generally called Tamerix japonica by horticulturists, but he doubts its being of Japanese origin, and thinks it more probably originated from a sport of T. indica, which assumed a peculiar manner of growth, and has since retained it. It is as hardy as T. indica, and its culture and multiplication are identical; moreover, years before T. japonica was heard of, this T. plumosa was well known, branches of it having been cut from a stock found under some large trees, in the ancient nursery of Luxemburg, at Paris. After all, this question is secondary from a garden point of view, the important fact, being that the plant is specially meritorious.

MADIA RADIATA is a pretty annual recently described by Dr. Kellogg, in Proceedings California Academy. The plant grows about three feet high, with succulent leaves about three to six inches long. The flowers (aster-like) are in loose corymbs, each flower 1¼ to 2 inches wide. The color is not stated.

ARISEMA RINGENS.—A correspondent of the *Gardener's Chronicle* writes: How rarely we meet with that beautiful and extremely curious foliage plant—Arisema ringens. Its trifoliolate foliage is born on stout fleshy stalks, and the shining green leaflets are ovate cordate, and very much acuminate, with a marginal vein as in most other Arads. As a stove foliage plant it is admissible into the most select collection. Its spathes are curiously bent over the spadix, something like a pastoral crook, and are interesting, though one has to stoop and peep under the foliage in order to see them; and then in general appearance they somewhat resemble the Californian Pitcher plant, being rounded and semi-translucent.

DOMESTIC INTELLIGENCE.

LIMA BEANS WITHOUT POLES.—Poles or stakes in many places are hard to get, and thus many are deprived of this delicious vegetable for want of means to *raise* them. Some years ago it was proposed, in order to do away with the necessity for poles, to lay brush wood on the ground, and let the vines run over it. This plan, though reported favorably on at the time, has never become popular. Now we see that a Michigan gentleman has discovered that by cutting off all the vines, or slender twining branches, the plant soon loses the disposition to climb up poles, and remains a thick-set bush, bearing as abundantly as if they were trained in the usual way.

It seems scarcely probable that they would bear quite so freely Perhaps this is tinged a little with the enthusiasm of success; for it is indeed a great success if this great trouble of vegetable growers, the bean pole, can be dispensed with. One can spare a few beans willingly, if the facts are even nearly as represented.—*Weekly Press.*

INFLUENCE OF AMMONIA ON THE COLOR OF FLOWERS.—An experiment was lately made by Vogel upon the influence of ammonia upon the colors of flowers, in which eighty-six species and varieties were exposed, under a glass bell, to a mixture of sal-ammoniac and lime-water, the fresh flowers being placed at the same height in all the experiments. As a general result a difference was appreciable between the action of the gas upon the colored matter deposited in granules, and that forming a solution, the effect being much less in the former than in the latter. In most cases the changes produced agreed closely

with those which the coloring matter of the flowers passed through in the course of withering; and even in natural withering and fading there is the same difference to be observed between the soluble colors and the granules.—*Report of Department of Agriculture.*

A BUG-PROOF POTATO.—A seedsman is advertising that he has a potato "which is as nearly bug-proof as a potato can be." This has allusion to the celebrated Colorado potato bug, which has wrought such terrible havoc on the potato fields of the west, and will no doubt be here before a couple of years or so pass over us. It seems strange at first thought that a potato bug will not eat any kind of potato as well as another; but it is really so, that they have a preference for some varieties. In Illinois, the writer once saw a quantity of potatoes set out for experiment, one row each of many kinds. Some of these rows had the bugs as thick as blackberries along their whole length, while neighboring rows had none. It is astonishing how soon these voracious beetles will strip a row of foliage. But though they have a choice they are by no means particular. They act on the principle usual with human mortals, that a crust of bread is better than none, and as soon as their first choice is gone, readily take to the second and devour that too. Starvation is not in their creed. A bug-proof potato is therefore not in the bills. If one has but a single kind, and no choice, it will go the way of all the rest.—*Weekly Press.*

SPEEDY GROWTH OF RADISHES.—In the publications of the Acclimatization Society of Palermo, we are informed that radishes may be obtained at any season, and very quickly, in the following manner: The seeds are to be first soaked for twenty-four hours and then placed in bags and exposed to the sun. They will begin to germinate in about twenty-four hours, and are then to be set in a box filled with well-manured earth, and moistened from time to time with lukewarm water. In five or six days the radishes will attain the size of a small onion. To grow radishes in winter the box is to be placed in a warm cellar, covered with a top, and the earth moistened from day to day with lukewarm water. —*Report of Department of Agriculture.*

APPLICATION OF THE GERM THEORY TO MAKING PRESERVES.—Miss Lydia Becker, although best known as a writer on political economy and social science, gave a valuable hint during a recent discussion of the British Association upon the "Germ Theory," in which she showed its bearing upon the making of preserves, and keeping mold from settling on the jam. According to the old practice of leaving the pots uncovered for several days' time was allowed for the germs in the atmosphere to descend and settle on the jam, which was a capital soil, and the result was a plentiful crop of mold. She therefore advised the ladies in the section, when making preserves, to cover up the pots while the sweetmeats were in a heated condition.—*Department of Agriculture Reports.*

THE JUJUBE (ZIZYPHUS SATIVA).—The Jujube is a native of the East Indies, and was originally called by the botanist *Malus Indica* or India apple.

The trees are of medium size, seldom growing more than twenty-five or thirty feet high. They have very crooked branches, covered with long recurved thorns, and a foliage of dark, shining green. In their native country the trees bloom in January or February, and the fruit ripens in June and July.

Fruit oblong, of a brownish color, and about one inch in length, containing one seed, somewhat resembling that of the date. It is esteemed delicious, being of a most pleasant sub-acid. It dries readily, and can thus be preserved with but very little trouble.

The Jujube has been cultivated to a limited extent in the Southern Atlantic and Gulf States. It will prove hardy wherever the orange can be grown, and should be more extensively cultivated.—*Rural Carolinian.*

JUGLANS RUPESTRIS,—THE SMALL FRUITED BLACK WALNUT.—Near Austin, and northward from here throughout a large portion of Western Texas, this tree grows along the gravelly borders of streams. It is of low, spreading habit, rarely more than two feet in diameter, with a height of from forty to fifty feet. Bark of the trunk and larger limbs dark gray and slightly furrowed, the smaller branches smooth and rather slender. The wood is very similar in appearance to that of the common Black Walnut but is harder and finer grained; whenever large enough, being excellent for furniture, and susceptible of a high polish, being more beautiful than the common Black Walnut. Leaves from nine to thirteen-paired, generally opposite, but

sometimes alternate towards the terminal one; the mid-rib and leaf-stems somewhat pubescent; rachis not channeled above. Its fruit is globular and has a long style; the entire fruit, with the husk, being only about one inch and a half in diameter. The shell is very thick and hard, kernel small and edible, but of very little value in a country abounding in Pecans, which are superior to it in every respect.

This species of Walnut was first discovered, a few years ago, by Dr. Englemann, of St. Louis. It is thought by some to be a mere variety of the common Black Walnut (*Juglans nigra*), to which it has a striking resemblance. It is hardly worthy of cultivation, because its fruit is of little value. In general appearance it is similar to both the Pecan and Black Walnut, both of which are more profitable for cultivation, because they grow larger and have more valuable nuts, and also they are fully equal to it for ornamental purposes, hence the *Juglans rupestris* will be rarely grown except in arboretums. The largest trees we have found of it were only two feet in diameter, and such specimens are very rare.—S. B. BUCKLEY, in *Our Home Journal.*

COTINUS AMERICANUS.—This rare tree was first discovered by the English botanist, Nuttall, in the Autumn of 1819, in Arkansas, on the high, broken, calcanous, rocky banks of the Grand river, a large tributary of the Arkansas, at a place then known to the voyagers by the name of "Eagle's Nest." In this rocky situation, it did not rise beyond the height of a shrub, and had a yellow, close grained, fragrant wood.

Nuttall afterwards described it, and he also has given a figure of a fruiting specimen in the fifth volume of the North American Sylvan, page 70.

In the month of March of 1841, when on a botanical tour, we found this *Cotinus* on the hills south of Huntsville, in Alabama, just before arriving at the ferry across the Tennessee River. It was there, a large shrub in flower and fruit the long hairs of its infertile panicles giving it a gay and beautiful appearance, resembling much the Venetian sumac or smoke tree, (*Rhus cotinus*), common in cultivation. It was very common among the rocks near the summit of the hill just before we descended into the river valley. Northeast of Huntsville, on our way to Salem, in Tennessee, soon after crossing the State line, we stopped at a farm house and spent part of a day in the woods, where we again saw the Large Leafed Cotinus as a small tree, some of the largest about a foot in diameter, and from twent-five to thirty feet high, the bark of the trunk and larger limbs of a light grey, rough and furrowed. We ascended one of the trees after specimens, and found the branches very brittle and easily broken, the broken stems exuding a yellow sap and a strong odor, which to us was not pleasant, although described as fragrant by Nuttall, but the difference may have been caused by the season—he found it in the Fall and we in the early Spring, when the sap flowed freely. On the trees in Tennessee, its leaves were large, some being six inches in length by three and four in width, smooth, and of a light green above, paler beneath, and pubescent along the veins. We think this tree has not been noticed by any botanist except as we have stated—hence it must be very rare and local in its habitat.

We prefer the old generic name, *Cotinus*, of Tourneport, instead of Rhus, from which genus it is easily recognized by all observers. In many instances, we have genera established on less marked distinctions. We hope, ere long, that this tree will be introduced into cultivation. A "smoke tree" twenty-five or thirty feet high, would be a great acquisition, and present a singularly beautiful appearance, covered with its delicate, hairy panicles. It would be hardy throughout a large portion of the United States. —S. B. BUCKLEY, in *Rural Alabamian.*

FOREIGN INTELLIGENCE.

CATALOGUE OF LILIES.—The following list of the varieties cultivated in Europe, we give from the *Gardener's Chronicle.* It will be very useful to those now numerous, who are making collections of this beautiful family:

albanicum,
andinum,
angustifolium,
atromaculatum,
atrosanguineum,
medeoloides,
Metzii,
Michauxii,
Milleri,
minus,

aurantiacum,
auratum,
autumnale,
avenaceum,
Batisua,
Broussartii,
Brownii,
bulbiferum,
Buschianum,
byzantinum,
callosum,
canadense,
candidum,
carniolicum,
carolinianum, *Cat.*,
carolinianum, *Mich.*,
Catanii,
Catesbæi,
chalcedonicum,
chalcedonicum,
citrinum,
colchicum,
columbianum,
concolor,
cordifolium,
Coridion,
croceum,
dalmaticum,
davuricum,
Dexteri,
excelsum,
eximium,
flavum,
formosissimum,
formosum,
Fortunei,
giganteum,
glabrum,
hæmatochroum,
Hartwegii,
hirsutum,
Hookeri,
Humboldtii,
isabellinum,
Jamajuri,
japonicum,
lancifolium,
lancifolium, *Hort.*,
latifolium,
Leichtlinii,
linifolium,
Loddigesianum,
longiflorum,
maculatum,
monadelphum,
nanum,
neilgherrense,
neilgherricum,
nepalense,
odorum,
pardalinum,
Partheneion,
parviflorum,
parvum,
penduliflorum,
pendulum,
pennsylvanicum,
peregrinum,
philadelphicum,
polyphyllum,
pomponium,
pomponium, *Thunb.*,
ponticum,
pseudo-tigrinum,
puberulum,
pubescens,
pulchellum,
pumilum,
punctatum,
pyrenaicum,
roseum,
rubrum,
sanguineum,
Sayii,
Schrymakersii,
sinicum,
speciosum,
speciosum, *Andr.*,
spectabile, *Link.*,
spectabile, *Salisb.*,
staminosum,
superbum, *L.*
superbum, *Thunb.*,
Szovitsianum,
Takesima,
Tametano,
tenuifolium,
testaceum,
Thomsonianum,
Thunbergianum,
tigrinum,
trioeps,
tubiflorum,
umbellatum,
venustum,
vestalis,
vitellinum,
Walkeri,
maculatum, *Hort.*,
marmoratum,
Martagon,
Maximowiczii,
Wallichianum.
Washingtonianum
Wilsoni.
Wittei.

FLORISTS' FLOWERS.—The group of flowering plants staged by Messrs. Standish & Co., of Ascot, at the meeting of the Royal Horticultural Society on March 6, deserved something more than a mere passing notice, because of the Cinerarias contained in it. While I was standing by this group of plants I noticed that of the numerous visitors who crowded the room on that day, by far the greater portion who passed by this group of plants were at once attracted by the rich coloring of these attractive Cinerarias. They were certainly very striking, and had finely-formed and very stout florets, though these were somewhat too much reflexed to pass muster under the rigid rules of the *Properties of Flowers*. They were full of interest for lovers of a very useful spring-flowering plant, which has been well described by Glenny as a "singularly beautiful subject."

Out of some 10 or 12 named varieties exhibited on this occasion, there were a few deserving a record. The flowers were all of dark colors, and in most cases there was the presence of a circle of bright color next the marginal hue, which has induced Messrs. Standish & Co., to designate their strain "tricolored" Cinerarias. The best flowers were Rev. B. K. W. Pearse, the margin of bright purple shaded with narrow white ring round the disc, the florets very stout but much reflexed; Rev. E. Everest, margin of dark purple, with a bright magenta ring next it, and a just perceptible white ring round a pale disc; Incomparable, margin of very bright purple, with narrow white circle and pale disc, a large and bold flower, but much reflexed; Enterprise, rich fiery magenta margin, a very handsome glow of color, pale disc, with a narrow white ring round it, a large and well-formed flower; Clipper, dark purple margin, pale disc, and narrow white ring, a stout and handsome flower; and Charmer, broad margin of bright purple shaded, and fiery red ring round a dark disc, a showy flower.

Some years ago a writer on the Cineraria stated:—"It will be recollected that this very beautiful plant has a small starry flower, with narrow petals, projecting outwards, all around a yellow disc, such petals being pointed or notched. Hitherto, if a new color or an unusual size has

been attained, it has been considered a justification to name the plant, and send it out as a new one. All this may be very well for a time, but the period has arrived when some regard should be paid to the form and habit of a new variety, and the properties may be summed up in a few words.'' Subsequently the Cineraria became greatly improved both in the form and habit of the new varieties, and for a time this flower occupied a no inconsiderable position in the estimation of florists. Then came a time when the Cineraria declined in popularity, and now named varieties are rarely met with. It is one of the characteristics of the present time that neglected plants should again be brought prominently forward, and be more gladly welcomed than many newer plants of greater pretentions; and who knows but the same good fortune may be in store for the now somewhat neglected Cineraria. *R. D., Gardener's Chronicle.*

ZONAL PELARGONIUMS AS STANDARDS.—With all due deference to Mr. Grieve, I think these are great mistakes. The plants themselves rebel against this form. The majority of those I have seen show much iron and wood, and but poorly formed heads. They look most unhappy objects, and seem to beseech every passer-by to serve them as Mr. Croucher does his prickly Aloes when they need potting—run a knife through their neck, and set the head on the ground. I differ *in toto* from your correspondent in this matter. Better, a thousand times better, flat beds of even forced beauty, than cold or ragged-headed Pelargoniums set up on or in iron cages. Even if the heads are good, as they are now and then, they seem incongruous. Pyramidal Pelargoniums are passible and very effective when done, but standards of the commoner stiff-growing kinds are not to be recommended. The Ivy-leaved kinds, grafted high on strong-stemmed seedlings, would form elegant objects. But even these are seldom done well. The other varieties, unless cradled in iron, are almost sure to be smashed by the wind. There are abundance of other plants for breaking the monotony of flat floral surface to be preferred to standard Pelargoniums; such for instance, as Humeas, Fuchsias, Palms, Yuccas, Aloes, Cannas, Pampas-Grass, &c. These and many other plants bring grace and variety, but standard Pelargoniums, if ever so well done, only make formality more formal.—*Observer.*

ARAUCARIA IMBRICATA AT BICTON.—It may be interesting to your readers to hear something about the Araucarias at Bicton in the present year. From two trees in the Araucaria avenue we have already gathered upwards of five hundred perfect seeds, a specimen of which is enclosed, and from several other trees, on which the cones are not yet ripe, we may safely calculate on securing at least five hundred more. The cones from which the produce here stated was taken averaged fifty perfect seeds to each; it may therefore be inferred that the Araucaria, when it arrives at maturity, will be a most productive tree.

There are in the nursery here only thirty plants averaging 1 foot in height which have been raised from seeds ripened at Bicton; and three others that were some years since planted in the pinetum average 1 foot 6 inches high. From the above data it is presumed that the Araucarias at Bicton have produced very few seeds in former years.

When writing on this subject it may be worth recording that the last year's seeds of Picea Nordmanniana, P. Pinsapo, P. amabilis, and many other good species have germinated very freely here this season; it is therefore hoped that those to whom my noble employer requested me to send a supply have been equally successful.—R. BEGBIE, in *London Journal of Horticulture.*

MOVING AND REPLANTING TREES, though the weather was anything than suitable for the work. The trees had received no previous preparation, and therefore required much root-tracing. I would tell those contemplating such work, unless provided with very efficient machinery, the moving of fine trees with boles ranging from 12 to 15 and 18 inches in diameter will but rarely be very satisfactory, as for several years they merely exist before beginning to grow freely again. With younger trees, the diameter of whose bole ranges from 4 to 8 inches, the work is comparatively light, and after the first year the trees will soon get over the check and grow away freely. Without previous preparation much of the success will depend on the careful tracing of the roots and the packing of them well. The soil is just rather wet for packing, and it is as well in such changeable weather not to have the holes made long before they are wanted.—*London Journal of Horticulture.*

GRIMES' GOLDEN PIPPIN.

DRAWN EXPRESSLY FOR THE GARDENERS MONTHLY.

T. SINCLAIR & SON, LITH. PHILA.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XIV. *JUNE, 1872.* *New Series, Vol. V. No. 6.*

HINTS FOR JUNE.

FLOWER GARDEN AND PLEASURE GROUND.

Towards the end of June propagation by budding commences. This is very commonly employed with the rose; but ornamental trees and shrubs may be increased in the same way. Closely allied species must be chosen to work together.

The Mannetti stock suckers so much that it has been found a pest rather than an advantageous stock on which to bud the rose; but yet budding is so useful, giving us a chance to disseminate rare kinds freely and cheaply, that some stock has to be employed. The favorite of the English, the Dog Rose, is wholly unsuited to our climate. The Prairie Roses have been found excellent stocks. Other roses take well on them, and they do not sucker much. It is old, very hardy, and it promises to be a very popular stock for rare roses.

The Rose bugs are apt to be very annoying at some seasons. The best remedy is to shake them off into a pail of water. The Rose slug is often very injurious to the leaves—completely skeletonizing them. All kinds of rapid remedies have been proposed—whale oil, soap, petroleum, &c., but the best thing of all is to set a boy to crush them by finger and thumb. It is astonishing how rapidly they are destroyed by this process. This is true of most of the larger insects. Hand picking or crushing is by far the best remedy.

Peg down Roses where a heavy mass of flowers is desired. The side shoots push more freely for this treatment.

Cut off the flowers of roses as they fade,—the second crop will be much better for the attention. Seeds of all flowering plants should be also taken off; all this assists the duration of the blooming season.

Propagation by layering may be performed any time when strong vigorous growing shoots can be had. Any plant can be propagated by layers. Many can be readily propagated no other way. Cut a notch on the upper side of the shoot, not below, as all the books recommend, and bend down into, and cover with rich soil. In a few weeks they root, and can be removed from their parents. Stakes for plants should be charred at the ends before using, when they will last for years.

Flower-beds should be hoed and raked, as soon as the ground dries after a rain. Loose surface soil prevents the under stratum drying out. Peg down bedding-plants where practicable. Split twigs make the best pegs. In dry weather do not water flower-beds often; but do it throughly when it is done. See that the water does not run off, but into and through the soil.

Mow lawns often, if you would have them green and velvety. Keep the scythe sharp; usually mowers do not use the grindstone often enough. Common farm scythes are not fit for lawn use; rivetted, and short scythes are the kind to get. If a lawn is mowed often, the grass need not be clean,—the sappy blades soon wither, and make a manure for the roots. The longest should be raked off, or the lawn will have a littery appearance. Where lawn mowers are used, take care not to cut too close, or weeds will grow and the grass will be killed out.

FRUIT GARDEN.

Watch newly planted fruit trees. If they have but a few weak leaves only, it shows the roots have been injured; then prune them severely, which will make them grow freely. It should be a main object to make all transplanted trees not merely have leaves, but have new shoots at the earliest possible moment. If they are growing very well, they may be allowed to perfect a few fruits. Overbearing on a newly planted tree is, however, one of the best ways of making it stunted for years.

Strawberries, when grown in hills,—the most laborious but most productive method of growing them,—should have runners cut off as they grow, and the surface soil kept loose by shallow hoeings occasionally. Short litter, half rotten as a mulch, is also beneficial. Lawn mowings are often applied, but with little benefit. Where they are grown in beds, they should not be too thick, as they starve one another, and the crop next year will be poor.

Blackberries are not always ripe when they are black. Leave them on till they part readily from their stalks.

Currants are so easily grown as to require few hints for their management. If they throw up many suckers, take out a portion now, instead of waiting till winter to cut them away. The Currant borer is a great pest, eating out the pith of the young shoots, and causing them to grow poorly, and bear but small fruit next year. Gummy "flypaper" is, we think, the best thing to catch them.

Gooseberries should have the soil, and even the plants, if it were practicable, shaded a little.

Thin out fruit buds; overbearing is one of the great causes of fruit failures. Under glass the gardener knows this. He cuts away half his bunches, and thins out half his berries; but few carry this excellent practice to the trees in the open air.

We again report the advice to trap insects with wide mouthed bottles filled with sweet liquid.

VEGETABLE GARDEN.

Peas for a Fall crop may be sown. It is, however, useless to try them unless in a deeply trenched soil, and one that is comparatively cool in the hottest weather overhead, or they will certainly mildew and prove worthless. In England where the atmosphere is so much more humid than ours, they nevertheless have great difficulty in getting fall Peas to go through free from mildew; and to obviate these drying and mildew-producing influences, they often plant them in deep trenches, made as for Celery, and are then much more successful with them.

Cabbage and Brocoli may still be set out for Fall crops, also requiring an abundance of manure to insure much success. Lettuce, where salads are much in request, may yet be sown, The Curled Indian is a favorite summer kind; but the varieties of Cos, or Plain-leaved kinds, are good. They take more trouble, having to be tied up to blanch well. Many should not be sown at a time, as they soon run to seed in hot weather.

At the end of June, some Celery may be set out for early crops, though for the main crop a month later will be quite time enough. It was once customary to plant in trenches dug six or more inches below the surface; but the poverty of the soil usually at this depth more than decreases the balance of good points in its favor. Some of our best growers now plant entirely on the surface, and depend on drawing up the soil, or the employment of boards or other artificial methods of blanching.

Beans produce an enormous crop in deeply trenched soils, and are improved as much as any crop by surface manuring. We hope this method of fertilizing the soil will be extensively adopted for garden crops this season Those who have not yet tried it will be surprised at the economy and beneficial results of the practice.

Cucumbers for pickling may be sown this month, and Endive for fall Salad set out. Parsley for winter use may be sown now, in boxes of rich soil, and set in a cool, shady place till it germinates.

Asparagus beds should not be cut off after the stalks seem to come up weak, or there will be but a poor crop the next season, and the beds will "run out" in a few years.

Tomatoes, after trying all kinds of trellisses recommended, will be found to do best on stakes tied up singly. It is best to plant a strong pole as for Lima Beans, with the plants when first set out, and tie up as they grow. Marketmen generally let them grow as they will, on the ground, which, perhaps, although not yielding as much, costs less labor, and may thus be most profitable.

The Swede Turnip or Ruta Baga should be sown about the end of the month. A well enriched piece of ground is essential, as by growing

fast they get ahead of the ravages of the fly. Manures abounding in the phosphates—bone-dust, for instance,—are superior for the Turnip.

Sweet Potatoes must be watched, that the vines do not root in the ground as they run, which will weaken the main crop of roots. They should be gone over about once a month, and with a rake or pole, the vines disturbed somewhat from their position.

Parsley for winter use may be sown now in boxes of rich soil, and set in a cool, shady place till it germinates.

Herbs for drying for future use, should be cut just about the time they are coming into flower. Dry them in the shade, and after sufficiently dry to put away, tie them in bunches, and hang in a cool shed, or place them loosely between the paper, and stow away in cupboards or drawers,—the last mode is by far the cleanest and most approved plan with the best housekeepers. Some, indeed, powder the leaves at once after drying, and put them away in bags, ready for use.

COMMUNICATIONS.

ABOUT TUBEROSES.

BY MR. CHAS. T. STARR, AVONDALE, PA.

Now I have a little practical experience to communicate to my fellow readers of the *Gardener's Monthly*, in relation to the "Tuberose." I have been growing them to some extent for the past three seasons, having grown some 25,000. Well, my experience thus far gives me most satisfactory results from *three year old* bulbs, they having produced two, three and four spikes from the one large bulb, the past season, and also the flowerets were unusually large and fine. Be it understood that these bulbs were grown in the open truck field, in beds of four rows each, one foot apart each way, with a two foot walk between the beds. Now it seems that the Tuberose, when flowered among other plants, in the flower-bed, border or in pots, is rendered worthless for future flowering, by its not getting leaf growth enough to build up the new side bulb that will form alongside the flower stalk, if it is planted in the proper place and condition that field culture gives. Now where the bulbs are kept in quantity in a greenhouse, in the spring there will always be some with *black* instead of *green* germs, these black ones will not flower that season; but plant them out 10 by 12 inches in beds the same as onions or beets are grown in this latitude, about the middle of May, and they will make bulbs that will produce from two to five splendid spikes the next season, at least such has been my experience. The tuberose bulb will flower indefinitely if kept in its proper growing state; the bulbs that are planted out May 15th, will make its first flower spike about September 1st, and in one month another spike will follow, and these may be taken up just before frost, potted in 7 or 8 inch pots and put in greenhouse, where they will flower about Christmas, if the necessary heat and moisture is given them.

CIRCULATION OF HOT WATER.

BY N. F. F., WAVERLY, MD.

I notice in the February number of the *Monthly*, a short article by Mr. Wm. Saunders, on "Heating by Hot Water." I have not the most remote idea of criticising said article, nor of pitting my limited knowledge against the practical skill of Mr. Saunders; I am, nevertheless, free to say that I do not see the matter in exactly the same light in which Mr. S. sees it. Heating by Hot Water is certainly one of the most simple methods of heating known to science; so simple, in fact, that many will not understand it. I am, however, unable to discover what, if any, advantage exists in the system proposed by Mr. S. Having the past autumn fitted up a small apparatus, consisting of a little less than 200 feet of 4 inch piping, the highest point in the flow is 20 feet from the boiler, but do not think it is any way preferable to the old system. Having carefully wrought the apparatus myself during the winter; also changed the level of the pipes several times during that period, and if it were convenient, would now fix them with the highest point at the extreme end of the flow and keep them so.

"Water does not naturally flow up hill;" true, but when inclosed in air tight tubes, and heat applied at the lowest point, perhaps it is not exactly in a natural condition. Of course the natural condition of water, like all other inert matter, is rest, and to overcome this, inertia force

must be used, which in the case in question is heat, and the motion of the water is by expansion; is it of any consequence whether the expansion be vertical or horizontal?

I have never had a case of bad circulation even in the most complicated arrangement, and could never detect any difference in the circulation, whether the water has had to flow from the basement to the attic of a lofty building, or in heating a range of glasshouses, where the highest point of several hundred feet of piping has been but a short height above the boiler. So well satisfied had I become of this fact, that I had resolved in my mind to carry the flow pipe as direct as possible from the boiler to the highest point to be heated, should I again have to put up a hot water apparatus for a lofty building. But so much has been written of late to simplify (?) the matter, that I would be in somewhat of a quandary as to where to fix the boiler,—whether midway from the bottom to the top, or as hitherto in the lowest point. I have one other question to ask.

Suppose that in fitting up hot water apparatus, say a thousand feet to one boiler, and that it is not necessary to sink the flow below the level of the boiler in any part for any purpose, as in passing a doorway, &c., a rise of 1 inch in 25 feet would be sufficient, or 20 inches rise in 500 feet, would it require less fuel to raise the water in this thousand feet of pipe to the boiling point than it would if the rise were confined to the 20 feet of flow next the boiler, and the fall equally distributed throughout the remaining 980 feet of piping? I think it would not, but am anxious to obtain information.

[Are not our correspondents confounding two distinct things? Expansion and circulation are surely not the same.—ED.]

HORTICULTURE ABOUT TROY, N. Y.

BY PILOT.

I have been reading over the back volumes of the *Monthly*, and found a mark put in at page 338, 1870, where you say "it may have been our misfortune in not finding the right places, or in not inquiring of the right parties." Just so, if you had inquired of the right parties; but how would you know who the right parties were? I am somewhat acquainted with the gardening fraternity in and around Troy, and can name some of the persons at least, who would have piloted you willingly to have seen the gardens. I will do what I can to erase from your memory that there are no flower sales, for there is Pfordt, a German, from Albany Co., comes twice a week in pleasant weather in summer, sometimes with two wagons, and stands on the corner in front of the Fulton Market; and Aukam, also a German, lives a little north-east of the city, in Rensselaer Co., has a city store on Federal street; and Davidson, at South Troy, has a place of sale at Knowlson's Drug Store, on Second street, near the Troy House; and Menand, of Albany, Co., has a stand in the summer at Shelden's Drug Store, on River street, where orders are taken, and flowers and plants are kept for sale. It is well worth a jaunt from Philadelphia to Troy for any one having leisure and money to spend, in traveling, to take the street cars on River street going south, and go on and on, over bridges and turns across the railroad tracks to what is called the Nail Factory, or South Troy, until you come to the end of the horse railway, and the beginning of the iron works, here you will have to ascend a long gradual rising hill, to the right of which is nothing but a mass of iron works, belching forth their flames and smoke, the like you might imagine by looking down from Fairmount Park at one point, into the valley below, and imagine a sea of fire, smoke and smut; but I have digressed, it was not the iron works you tried to see, but go on up the hill, over bridges, &c., and inquire for Mr. Davidson, the florist, you will find him in the most romantic spot you can wish for, but the last place you would expect to find a professional florist. I suppose he settled here, most likely, to be near his old employer, the elder Mr. Burden, who being attracted by the superior water-power, settled here, and Mr. Davidson coming from Scotland with him as gardener, looks upon his place as one of his own creation; here you will find some one to pilot you to see other places as well, for they are plenty about here. There are two more gardens on Congress street.

I will mention a few names of gentlemen living in and around Troy, that you can apply to in case you should pass this way; Henry Warren, seed and agricultural store, foot of Grand Division street; Wm. Bull, of Green Island; R. S. Munn, North Troy; or come to this place, and I will see that you have a pilot. How is it I never knew about such a meeting at that time in Troy? I certainly must have overlooked it if it was ever published in the *Monthly;* but I suppose the ladies

were not admitted, if so, I should have been there, had I have known it.

[A large number of ladies were elected members of the American Association at the Troy meeting. This is not the first scolding we received because we said the editor found no Horticulturists about Troy. The publishers retorted that it was his own fault,—if he had taken the trouble to look over the subscription books before he started, he would have found many of them. We hope to profit by these lectures.—ED.]

THE CEPHALOTAXUS.

BY MR. JOSIAH HOOPES, WEST CHESTER, PA.

In the *Gardener's Monthly* for November, the editorial remarks on the "Fields Collection" of Conifers, is exceedingly interesting, and should prove an incentive to others who have the means, to go and do likewise. In the allusion to *C. drupacea*, it is stated that the plants are now in fruit, which was to be expected, as plants of any size for years have shown female flowers; but an agreeable surprise and confirmation of previous surmise, has lately been afforded me, by a large plant of *C. Fortunii* producing a fine crop of fruit also. This plant in the fine collection of Jacob P. Jones, Esq., near Philadelphia, has dissipated the doubts as to this species being specifically distinct from *C. drupacea*, by its splendid, large purple drupes. Most foreign writers and nurserymen still classify *C. drupacea* as the female form, and *C. Fortunii* as the male, of one and the same plant; but years ago I detected female flowers on the latter plant, and hence described it as a species in the "Book of Evergreens." In this view I was preceded by other writers, who held the same opinion, but as the proof is now entirely full, each must take its proper position in a scientific classification. Whilst on this subject, allow me to correct a mistake in the name of the genus, as recorded by myself in my published work. I there state that the name of the genus is derived from "*Kephale*," a head, and "*taxis*," arrangement. The latter should read "taxus," the Yew; literally, a Yew with the flowers in clusters.

PEAR CULTURE—THE LARCH.

BY EDWARD H. SMITH, SUSPENSION BRIDGE, NEW YORK.

I have a great number and a great variety of Pears under my charge. The majority of them look thrifty and well, and most of them well loaded with fruit; but as recently mentioned in the *Monthly*, many did not blossom, and they are among the healthiest looking. In my case they are the most thrifty growers in the garden. They are on quince,—a grand mistake, all thrifty and fast growers should have a chance to extend themselves. Put them on standards and graft above ground; thin out the tree and admit the sun and air from the first start, but do not cut back,—cut out all together. Do not let more limbs grow than wanted, and thus, as Mr. Capron says, by the renewal system, we may overcome much that is wrong about the Pear.

Really it is a pity to see fine pear trees that ought to bear, fruitless; and by mutilation and striving to dwarf that which will not be dwarfed, they will grow in spite of all but three or four long, soft limbs only, in place of the one fine healthy one. The trees are so thick in head and crowded by this cutting back, that there is not sap sufficient for fruit. These are the trees that suffer much from lightning. I cut out all dead limbs among the first thing after I took these trees in charge, and gave them a good thinning. The first storm in spring was a thunderstorm. The next day I cut out many limbs to all appearance quite dead, in leaves and wood. We have had many storms since, after which limbs and fruit would be withered and black. I have cut all out, but I never noticed this before. Another thing, it is not good to graft the pear on the quince below ground. I find at the union of both that insects of all kinds make their nest there, and seriously damage the trees.

One word to H. A. J., Chicago, Ill., about the English Larch. I planted many larch trees in England, and cut the same for ladders and fence rails inside of 20 years. The best situation is hill, mountain rocks and stony uplands. I have seen thousands planted in stones, with no soil to speak of.

CLIMBERS GROWN AS TREES AND SHRUBS.

BY WALTER ELDER, LANDSCAPE GARDENER, PHILADELPHIA.

Wisteria sinensis can be so trained as a small tree supporting itself. One of the best specimens we have ever seen, is growing upon the pleasure grounds of "Bloomsdale," where David Landreth & Sons grow their field and garden seeds. It is a straight, erect tree, thirty-five feet high; as well branched and symmetrical in form as a well grown Cronus florida, and when clothed

with its gorgeous florescence of pale blue, is surpassingly ornamental and highly odoriferous. The stem is 8 inches in diameter.

Wisteria frutescence is often grown as a dwarf weeping tree, with a bare stem four to six feet, and branches on top hanging down very gracefully; the stem grows four inches in diameter. When the tree is covered with its blossoms of deep purple, it is a real beauty.

There are four other species of Wisteria, *sinensis alba*, white blooms; *frutescence alba*, white blooms; *Brachybotria*, blooms redish purple; and *Magnifica*, blooms clear lilac,—all may be trained as trees.

Japan Honeysuckle, trained upon a post six feet high, will form an evergreen bush seven feet high, with broad shining foliage, and when clothed with its florets of white, is as beautiful as it is fragrant. A real ornamental weeping shrub.

Chinese Honeysuckle, needs a post four feet high, and forms a very beautiful and fragrant evergreen weeping shrub, five feet high.

Golden-leaved Honeysuckle, needs a post three feet high, and forms a broad bush four feet high, whose gold speckled leaves contrasts beautifully with the dark green foliage of the Chinese and Japan. It is evergreen; the foliage being its peculiar beauty.

The *Coral*, the *Yellow* and the *Monthly Honeysuckles* need posts four feet high, and make deciduous shrubs five feet high. They are very ornamental when in bloom, and if their blooms are cut off when they fade, they will bear flowers from May to November. So will the Chinese and Japan species.

All the Honeysuckles form weeping shrubs, and give diversity, fragrance and cheerfulness to the shrubbery in general.

Jasminum nudiflorum may be trained upon a post five high, and will form a broad evergreen bush six feet high. As it blooms very early, it is needed to open the season of blossom.

Jasminum officinale may get a post five feet high, and makes a thick massy bush six feet high. No odors can surpass the sweet perfumes of its lovely florets of white.

Clematis flamula, trained upon a post four feet high, will form a massy bush five feet high. Its star formed florets are produced in great profusion, and in sweet scent excel the famous Hawthorn.

The Honeysuckle, Jasmines and Clematis, when trained high, get bare at the bottom, therefore, when trained as shrubs, they should not be grown higher than we have noticed them to be.

YELLOWS IN THE PEACH.

BY MR. J. W. KERR, DENTON, MD.

I observe in the April number of the *Monthly*, in your remarks relating to the Yellows in Peach Trees, that you leave yourself uncommitted to a belief, that the disease causes the fruit to ripen in advance of its natural season. You invite communication of "positive experience" respecting the case, hence I send you the following:

In 1862–63, in Dauphin Co., your State, I gathered fruit of Crawford's Early from trees affected by the yellows, ten days before Troth's Early ripened on healthy trees. The peaches thus gathered were highly colored, nearly or altogether full size the first year, but somewhat smaller the second; marketed in Harrisburg as early as the first run of peaches from Norfolk, Va, and this Peninsula, and brought better prices too. Upon further investigation I found the shell which incases the kernel to be perfect, so far as I was able to discover, though the kernels were not properly matured.

Another instance previous to the above, while in northern part of York Co., Pa, there came under my notice a fine natural peach, ripening with Old Mixon Free; the tree however began to show symptoms of the yellows, and the first season thereafter ripened its fruit with Early York; the next season the fruit was smaller and still earlier, the third year the same tree bloomed, —set fruit, but died about the time of its natural season of ripening; the fruit however colored up and attained the size of a shellbark, or (hickory nut), and tasted somewhat peachy. Since, in Carolina Co., Md., I have seen Early York and Serrated Early York ripen before Hale's. The former aroused considerable interest amongst some fruit growers here, who thought it to be a "New Variety, larger and earlier than Hale's." I went to see it, with a view of procuring the buds, if satisfied of its being a distinct kind, but upon examination, I found the trees to be entirely girdled by the "Grub." I then noticed at a short distance from the trees, a sickly cast in the color of the foliage, when compared with the rich green leaves on the trees around them. In this county, I have the first case of "yellows" yet to see, which leads me to believe that there are causes exclusive of the yellows that advance the season of ripening of peaches, and though the fruit may color up, look well and sell readily, I regard it extremely hazardous to the interests of Peach Growers, to attempt the establishment of *early* varieties upon such basis. "Plowden's

Seedling" *may* be a distinct variety, yet at one place we hear of it having a serrated leaf without glands; at another, serrated with glands. This truly is a variation that I have never seen in any other variety; be that as it may, I am not yet ready to accept the belief that we have a good market variety, free from rot as Troth's Early, and ripening "two to three weeks earlier than Hale's."

PRECOCITY OF DISEASED FRUIT.

BY MR. GEO. P. LUCKHARDT, OREGON, MO.

In the last *Gardener's Monthly*, page 118, you request any correspondent who has had certain knowledge of the fact, whether a tree once healthy and afterwards suffering from the yellows, will have the fruit ripen earlier on this account, and having noticed one very striking case last summer, I take pleasure in stating it.

Last third of July, Mr. Manifee brought some very nice and perfectly ripe Hale's Early peaches to town, and it being more than two weeks earlier than all the others ripened, I inquired of Mr. Manifee, if his tree was not diseased, and on examining the tree, he thought the leaves looked rather more "yellow" than the others.

I saw Mr Manifee to day, and he says the tree is about "dead."

ORIGIN OF THE ISABELLA GRAPE.

BY MR. H. W. RAVENEL.

In your April number is an article on the Origin of the Isabella Grape, by Dr Wm F. Channing, in which he introduces a letter from Geo. Gibbs, Esq, of New Haven, on the subject.

This account given by Mr. Gibbs, coincides essentially with our traditions here. Dr. Curtis, in his "Woody Plants of North Carolina," page 112, makes the following statement, which, besides corroborating Mr. Gibbs' account, extends the history one step further back.

"Dr. C. L. Hunter, of Lincoln Co., who has given much attention to the history of our grapes, has communicated most of the following items in regard to the Isabella. D. Laspeyee was probably its first cultivator in the United States, probably as early as 1805, as he sold it in the Wilmington market in 1810. Judge Ruffin cultivated it in Orange Co. in 1811, under the name of *Laspeyee Grape*. It is a tradition that Gov. Smith brought it to Smithville, in 1809. About the year 1810, Mrs. Isabella Gibbs took a rooted cutting from Gov. Smith's garden to Brooklyn, New York, according to a current account. According to Dr. Laspeyee, she got the cutting from him. These statements may, in a sort, be reconciled, if Gov. Smith obtained his stock from Dr. Laspeyee. In 1819, General Swift bought the Gibbs place, and it was there the elder Prince first saw and obtained this grape, which he named the *Isabella*, in compliment to Mrs. Gibbs. Dr. Hunter has some of these statements from Gen. Swift. Dr. Laspeyee was under the impression that this which he called the *Black Caps*, was one of the vines which he brought from St. Domingo, but it was probably the accidental introduction of an American among his foreign stocks. Dr. Hunter seems to be of opinion that it came to the Cape Fear regions from South Carolina, according with the tradition mentioned in Dr. Hawk's History."

There is a tradition that this grape was an accidental seedling, originally found on the *Goose Creek*, a tributary of the Cooper River, not far from Charleston, but I have never been able to trace it to any authentic source. The wild Labrusca is found through the middle region of South Carolina, and there is thus no insuperable objection to this tradition if it were properly authenticated.

That the Isabella is an American grape, and belonging to the Labrusca type, there can be no reasonable doubt, as to the seedling, (under our own personal observations here) sometimes revert to the wild type, and possess that peculiarity of all the native American grapes, viz: that some of the seedlings bear perfect flowers, and on the fertile vines, whilst others have staminate flowers only, and are barren, a character known in botanical terms as *Diocio-polygamous*. The seedlings of the foreign grape, vitis vinifera, and all of its varieties, bear always perfect flowers, and all the vines are fruitful. Whenever, therefore, there is any doubt of the native or foreign changing of a grape, this test may be relied on as conclusive.

With respect to the Catawba grape, we have more trustworthy data. The place of its origin has always been ascribed to the French Broad River, in Buncombe Co., North Carolina, not far from Asheville, and on the farm of Wm. Murry. In 1853, I had from the late Wm. Murry, the son of the Murry on whose farm it was first found, an account of this grape. He remembered when a boy, seeing the original vine at his father's place, and had often eaten grapes from it. He said that Gen. Davy, in 1807, then

Senator from South Carolina, living at Rocky Mt., on the Catawba River, in South Carolina, transplanted some of these vines to his residence, and from thence took them to Washington, where they were distributed. From this source they came into possession of Major Adlum and also of Mr. Longworth of Cincinnati.

I had this statement from Mr. Murry himself who was then living at Catoosa Springs in Georgia, and he spoke confidently and earnestly of its undoubted origin there. This grape also, there can be no doubt, is a chance seedling of V. Labrusca, having all the characters of that species, except in the superior quality of the fruit, and in rather less hoariness of the underside of the leaf, which are not essential characters.

ORCHIDEÆ No 4.

BY MR. JAMES TAPLIN, MANAGER TO GEORGE SUCH, ESQ., SOUTH AMBOY, N. J.

Dendrobium Nobile.

If I were confined to growing one variety of Orchid, I think I should have most satisfaction from this variety; others may be more rare and expensive, but this may be always depended on to flower well under the simplest treatment, and certainly few plants are more lovely when in flower, and a well established plant in a six inch pot, will give comparatively as many flowers as ever so large a specimen. Many growers cultivate their plants in a basket, but I consider that a mistake, for it is naturally of upright growth, and I do not recollect seeing plants so vigorous as when grown in pots or frame. Another mistake I consider is frequently made with this and other Orchids, in keeping the plants so dry that all the leaves drop off and the shoots shrivel. I am aware this is done with the idea to make the plants flower freely, but if there are more flowers they are all smaller, do not last so long, and the young growth is weakened; but the extra drying is not necessary at any rate for this variety, and a moderate quantity of foliage is an advantage to the beauty of the plant when in flower.

The above variety being so common, there are probably many large and handsomer specimens in the country, but it being a free grower, any one may get up a nice plant in a short time. I began with our best plants three years ago, when it was quite small, after it had been growing in an amateur greenhouse for several years, and was getting smaller instead of increasing in size. It is now four feet in diameter, with shoots three feet long and thick in proportion; many of the shoots are covered with flowers for two feet of the length; it has been in flower now, April 8th, for six weeks, and will last for some time longer. I gathered 150 flowers from it at Easter, and they are not missed.

If the plants require repotting, do it after blooming, but large plants properly treated will not require fresh pots for several years. The soil I use is the fibrous part of peat and spagnum moss in about equal parts, fill the pots nearly full of broken pots, (not "coke," as I was made to say in my last), shake away all the old soil, if decayed, and fill in with fresh without breaking the roots, raise well above the pot, it will then take abundance of water, both at root and overhead during the growing season; shade from bright sun until growth is finished, then gradually expose to full sun. I have placed the plants out of doors in full sun with good results. The plants will winter in any house not below 40°, with only water enough to prevent shrivelling, and shaded when flowers commence to open, they will last a long time. This is a plant little subject to insects if in good health.

ELIGIBLE TIMBER TREES.

BY FERD. VON MUELLER, MELBOURNE, AUS.

(*Concluded.*)

Leucadendron argenteum, Brown.

The Silver tree of South Africa is included on this occasion among forest trees, because it would add to the splendor of our woods, and thrive far better there than in our gardens. Moreover, with this tree many others equally glorious might be established in our mild forest glens as a source of horticultural wealth, were it only to obtain in future years a copious supply of seeds. Mention may be made of the tall Magnolia trees of N. America (*Magnolia grandiflora*, L., 100 feet high; *M. umbrella*, Lam., 40 feet; *M. acuminata*, L., 80 feet; *M. cordata*, Michx. 50 feet; *M. Fraseri*, Walt., 40 feet; *M. macophylla*, Michx., 40 feet); *M. Yulan*, Desf. of China, 50 feet; *Magnolia Campbelli*, Hook., of the Hymalayas, 150 feet high and flowers nearly a foot across; *M. sparerocarpa*, Roxb., also of the Indian Highlands, 40 feet; the North America Tulip tree (*Liriodendron tulipifera*, L.), 140 feet high, stem 9 feet in diameter; the Mediterranean Styrax tree (*Styrax offi-*

cinalis, L.); *Stenocarpus sinuosus*, Endl., of of East Australia (the most brilliant of the *Proteaceæ*) the crimson and scarlet Ratas of New Zealand (*Metrosideros florida*, Sm.; *M. lucida*, Menz.; *M. robusta*, Cunn., 80 feet high; *M. tomentosa*, Cunn., 40 feet); *Fuchsia excorticata*, L., also from New Zealand, stem 2 feet in diameter; the crimson flowered *Eucalyptus ficifolia* of West Australia; *Rhododendon Falconeri*, Hooker, from Upper India. 50 feet high, leaves 18 inches long. In Sassafras gullies, here alluded to, also may be planted the great *Melaleuca Leucadendron*, L., the true Asiatic Cajuput tree, which grows to a height of 100 feet; even the North European Holly, (*Ilex aquifolium*), which occasionally rises to 60 feet, though both from regions so distant.

LIQUIDAMBAR ALTINGIA, Blume.

At the Red Sea and in the mountains of India and New Guinea, at 3000 feet probably hardy in the warmer parts of our colony. The tree attains a height of 200 feet. It yields the fragrant balsam known as liquid Storax.

LIQUIDAMBAR STYRACIFLUA, L.

The Sweet Gum tree. In morasses and on the springs of the forest of N. America, with a wide geographic range. The tree attains vast dimensions of its crown; the stem 10 feet in diameter. The terebinthine juice hardens, on exposure, to a resin of benzoin odor. Wood fine-grained.

MACADAMIA TERNIFOLIA, F. von Muell. (*Helicia ternifolia*, F. M.)

The Nut tree of subtropic East Australia, attaining a height of 60 feet; hardy, as far south as Melbourne; in our forest valleys likely of fair celerity of growth. The nuts have the taste of hazels.

MORUS RUBRA, L.

The Red Mulberry tree of North America is the largest of the genus, attaining a height of 70 feet; it produces a strong and compact timber. The White Mulberry tree (*Morus alba*, L.), with others, offering food to the silkworms, should be planted copiously everywhere for hedges or copses.

MACLURA AURANTIACA, Nuttal.

The Osage Orange of North America. Greatest height 60 feet; wood bright yellow, very elastic, fine-grained. For deciduous thorn-hedges the plant is important; its value for silkworms needs further to be tested.

OSTRYA CARPINIFOLIA, Scopoli.

South Europe and Orient. The Hop Hornbean. A deciduous tree, 60 feet high.

OSTRYA VIRGINICA, Willdenow.

Leverwood tree of North America, 40 feet high, in rich woodlands. Wood singularly hard, close-grained and heavy, in use for levers and other implements. (29.)

PISTACIA VERA, L.

Indigenous in the Orient, as far as Persia. A deciduous tree, 30 feet high, yielding the Pistacia Nuts of commerce, remarkable for their green almond-like kernels. The likewise deciduous Mediterranean *Pistacia Terebinthus*, L., yielding the Chio Turpentine, the *P. Atlantica*, Desf., and the evergreen South European *Pistacia Lentiscus*, L., furnishing the mastix, grow rarely to the size of large trees.

PLANERA JAPONICA, Miquel.

Considered one of the best timber trees of Japan.

PLATANUS OCCIDENTALIS, L.

The true Plane tree of the East part of North America. More eligible as an avenue tree, than as a timber tree; diameter of stem at times 14 feet; wood dull red.

PLATANUS ORIENTALIS, L.

The Plane tree of South Europe and Middle Asia. One of the grandest trees for lining roads and for street planting, deciduous like the other planes, rather quick of growth, and not requiring much water; attains a height of 90 feet. The wood is well adapted for furniture and other kinds of cabinet work.

PLATANUS RACEMOSA, Nuttall.

The Californian Plane tree. Wood harder and thus more durable than that of P. occidentalis, also less liable to warp.

POPULUS ALBA, L.

The Abele or White Poplar of Europe and Middle Asia. Height 90 feet. It proved here an excellent avenue tree, even in comparatively waterless situations, and gives by the partial whiteness of its foliage a pleasing effect in any plantation. *Populus canescens*, Sm., the grey Poplar, is either a variety of the Abele or its hybrid with the Aspen, and yields a better timber for carpenters and millwrights.

POPULUS BALSAMIFERA, L.

The Tacamahac or Balsam Poplar, of the

(29.) More generally called Iron wood in the United States.

colder, but not of the coldest parts of North America, 80 feet high. Its variety is *P. candicans*, Aiton.

POPULUS GRANDIDENTATA, Michaux.
North America, 60 feet high. A kind of Aspen.

POPULUS HETEROPHYLLA, L.
The downy Poplar of North America. Height 60 feet.

POPULUS MONILIFERA, Aiton. (*P. Canadensis*, Desf.)
The Cottonwood tree of North America. Height 100 feet. One of the best poplars for the production of timber.

POPULUS NIGRA, L.
The European Black Poplar, extending spontaneously to China. It includes *Populus dilatata*, Aiton, or as a contracted variety, *P. fastigiata*, Desf., the Lombardy Poplar. Greatest height 150 feet. Growth rapid, like that of all poplars. Wood soft, light and of loose texture, used by joiners, coopers and turners, furnishing also superior charcoal. Bark employed in tanning. The tree requires damp soil.

POPULUS TREMULA, L.
The European Aspen. Height 80 feet. It extends to Japan, where also a peculiar species, *Populus Sieboldii* (Miq.) exists. The aspenwood is white and tender, and in use by coopers and joiners.

POPULUS TREMULOIDES, Michaux.
The North American Aspen. Height 50 feet. It extends west to California, where a particular species, *Pop. trichocarpa*, Torrey, occurs. All Poplars might be planted like all Willows, in our gullies, to intercept forest-fires, also generally on river-banks.

QUERCUS ÆGILOPS, L*
South Europe. A tree of the size of the British Oak. The cups, known as Valonia, used for tanning and dyeing; the unripe acorns as Camata or Camatena, for the same purpose. The wood is capital for furniture.

QUERCUS ALBA, L*
The White or Quebec Oak. A most valuable timber tree, 100 feet high; diameter of stem, 7 feet. Wood in use by ship-builders, wheelwrights, coopers and other artisans.

QUERCUS ANNULATA, Smith
A large Oak of Nepal, which provides a very good timber.

QUERCUS AQUATICA, Walter.
North America. Height of tree 60 feet; it furnishes a superior bark for tanning, also wood for ship-building.

QUERCUS CERRIS, L.
South Europe, of the height of the English Oak, in suitable localities of quick growth. The foliage deciduous, or also evergreen. The wood available for wheelwrights, cabinetmakers, turners, coopers; also for building purposes.

QUERCUS COCCIFERA, L.
The deciduous Kermes Oak of South Europe; so called from the red dye, furnished by the *Coccus ilicis*, from this Oak. It also supplies tanner's bark. The huge and ancient Abraham's Oak belongs to this species.

QUERCUS COCCINEA, Wangenheim.
The Black Oak of North America. Height 100 feet; stem-diameter, 5 feet. Foliage deciduous. The yellow dye, known as Quercitron, comes from this tree. Bark rich in tannic acid. (30.)

QUERCUS CORNEA, Loureiro.
China. An evergreen tree, 40 feet high. Acorns used for food.

QUERCUS FALCATA, Michaux.
North America. Foliage deciduous. Lives in dry sandy ground. A good-sized tree with excellent tanner's bark.

QUERCUS ILEX, L.
The Holly Oak of South Europe. Height of tree 50 feet. Wood in use for ship-building, bark for tanning. From varieties of this tree are obtained the sweet and nourishing Ballota and Chestnut acorns.

QUERCUS INCANA, Roxb.
A Himalayan timber tree of great dimensions, beautiful, evergreen.

QUERCUS INFECTORIA, Oliv.
Only a small tree, with deciduous foliage. Chiefly from this tree the galls of commerce are obtained.

QUERCUS LANCIFOLIA, Roxb.
A tall timber tree of the Himalayas. Wood valued for its durability.

(30.) Botanists in writing the Black and the Scarlet Oak as one specifically, must not confound the qualities. Practically the bark of the Scarlet Oak is not near of as much value as that of the Black. In this part of the country the leaves remain on long after the Black have fallen; the acorn cup has the scales more united with the cup than the Black has, and the acorn has a white or whitish flesh, instead of a yellow as in the Black. *Quercus tinctoria*, though certainly variable, seems to have as good characters of its own as other recognized species.

QUERCUS MACROCARPA, Michx.*
The Burr Oak of North America. Tree 70 feet high. The timber nearly as good as that of the White Oak.

QUERCUS PALUSTRIS, Du Roi.
The Marsh Oak of North America. Height 80 feet; of quick growth. The wood, though not fined-grained, is strong and tough.

QUERCUS PRINUS, L.
The North American Swamp Oak. A tree 90 feet high, available for wet localities. Foliage deciduous. Wood strong and elastic, of fine grain. A red dye is produced from the bark.

QUERCUS ROBUR, L.*
The British Oak, extending through a great part of Europe and Western Asia, attaining a great age and an enormous size. Extreme height 120 feet. Two varieties are distinguished:—1. *Quercus sessiliflora*, Salisbury. The Durmast Oak, with a darker, heavier timber, more elastic, less fissile. This tree is also the quickest of the two in growth, and lives on poorer soil. Its bark is also richer in medicinal, dyeing and tanning principles. 2. *Quercus pedunculata*, Willd. This variety supplies most of the oak-timber in Britian for ship-building, and is the best for bending under steam. It is also preferred for joiner's work.

QUERCUS RUBRA, L.
The Red Oak of North America. Height 100 feet; diameter of stem 4 feet. The wood is not of value; but the bark is rich in tannin. Autumnal tint of foliage beautifully red.

QUERCUS SEMECARPIFOLIA, Smith.
In the Himalayas. Height of tree often 100 feet; girth of stem 18 feet. It furnishes a first-class timber.

QUERCUS SERRATA, Thunberg.
One of the 23 known Japan Oaks. It yields the best food for the oak silkworm (*Bombyx Yamamaia.*)

QUERCUS SIDEROXYLON, Humboldt.
Mountains of Mexico, at 8,000 feet elevation. An Oak of great size, of compact timber, almost imperishable in water. *Q. lanceolata*, *Q. chrysophylla*, *Q. recticulata*, *Q. laurina*, *Q. obtusata*, *Q. glaucescens*, *Q. Xalapensis* (Humb.) and *Q. acutifolia* (Nee), are among the many other highly important timber Oaks of the cooler regions of Mexico.

QUERCUS SQUAMATA, Roxburg.
One of the tallest of the Himalayan Oaks. Wood lasting.

QUERCUS SUBER, L.*
The Cork Oak of South Europe and North Africa; evergreen. It attains an age of fully 200 years. After about 20 years it can be stripped of its bark every 6 or 7 years; but the best cork is obtained from trees over 40 years old. Height of tree about 40 feet. Acorns of a sweetish taste.

QUERCUS SUNDAICA, Blume.
One of the oaks from the mountains of Java, where several other valuable timber oaks exist.

QUERCUS TOZA, Bosc.
South Europe. One of the handsomest oaks, and one of the quickest of growth. Foliage evergreen.

QUERCUS VIRENS, L.*
The Live Oak of North America; evergreen, 50 feet high. Supplies a most valuable timber for ship-building; it is heavy, compact, fine-grained; it is moreover the strongest and most durable of all American Oaks. Like *Q. obtusiloba*, Michaux., it lives also on seashores, helping to bind the sand, but it is then not of tall stature. Of many of the 300 Oaks of both the Western and Eastern portion of the Northern hemisphere, the properties remained unrecorded and perhaps unexamined; but it would be important to introduce as many kinds as possible for local test-growth. The acorns, when packed in dry moss, retain their vitality for some months. The species with deciduous foliage are not desirable for massive ornamental planting, because in this clime they shed their dead leaves tardily during the very time of our greatest verdure.

RHUS VERNICIFERA, Cand.
Extends from Nepal to Japan. It forms a tree of fair size, and yields the Japan varnish.

RHUS SUCCEDANEA, L.
The Japan Wax tree, the produce of which has found its way into the English market. The Sumach (*Rhus coriaria*, L.), and the Scotino (*Rhus cotinus*, L.), both important for superior tanning and for dyeing, thrive here quite as well as in South Europe. They are more of shrubby growth.

ROBINIA PSEUDACACIA, L.
The North American Locust Acacia. Height

to 90 feet The strong, hard and durable wood is for a variety of purposes in use, and particularly eligible for tree nails. The roots are poisonous. The allied Robinia viscosa attains a height of 40 feet.

SASSAFRAS OFFICINALE, Hayne.
The deciduous Sassafras tree, indigenous from Canada to Florida, in dry open woods. Height 50 feet; leaves lobed; wood and bark medicinal, and used for the distillation of Sassafras oil.

SOPHORA JAPONICA, L.
A tree of China and Japan, resembling the Laburnum. up to 60 feet high; wood hard and compact, valued for turner's work. All parts of the plant purgative; the flowers rich in a yellow dye.

SALIX ALBA, L*
The Huntingdon or Silky Willow of Europe and Middle Asia. Height 80 feet, circumference of stem 20 feet; wood light and elastic, available for carpenters work and implements, bark for tanning. The golden Osier (*Salix vitellina*, L), is a variety. The shoots are used for hoops and wickerwork.

SALIX BABYLONICA, Tournefort.
The Weeping Willow, indigenous from West Asia as far as Japan, Important for consolidating river banks.

SALIX CAPREA, L.
The British Sallow or Hedge Willow; grows also to a tree; wood useful for handles and other implements, bark for tanning. It is the earliest flowering willow.

SALIX CORDATA, Muhlenb.
One of the Osiers of North America.

SALIX DAPHNOIDES, Villars.
Middle Europe and Northern Asia, as far as the Amoor. A tree of remarkable rapidity of growth, 12 feet in four years.

SALIX FRAGILIS, L.
The Crack Willow. Height 90 feet, stem to 20 feet in girth. A variety of this species is the Bedford Willow, *Salix Russelliana*, Smith, which yields a light elastic tough timber, more tannin in its bark than oak, and more salicine (a substitute for quinine) than most congeners.

SALIX LANCEOLATA, Smith.
One of the Basket Willows, cultivated in Britain.

SALIX LUCIDA, Muhlenb.
One of the Osiers of North America.

SALIX PURPUREA, L.
Of wide range in Europe and West Asia. One of the Osiers.

SALIX RUBRA, Hudson,
Throughout Europe, also in West Asia and North Africa; is much chosen for Osier beds. When cut down, it will make shoots 8 feet long in a season.

SALIX TRIANDRIA, L.* (*S. amygdalina*, L.)
The Almond Willow, through nearly all Europe and extratropical Asia. Height of tree 30 feet. Shoots 9 feet long, for hoops and white basket work, being pliant and durable.

SALIX VIMINALIS, L.*
The common Osier of Europe and North Asia, attains the height of 30 feet. One of the best for wicker-work and hoops; when cut it shoots up to a length of 12 feet. It would lead too far to enumerate even the more important willows all on this occasion. Prof. Andersson, of Stockholm, admits 158 species. Besides these, numerous hybrids exist. Many of the taller of these willows could here be grown to advantage.

TILIA AMERICANA, L.
The Basswood tree or North American Linden tree, growing to 52° North Latitude. Height of tree 80 feet, diameter of stem 4 feet; wood pale and soft. *Tilia heterophylla*, Vent., the Silver Lime of North America, and Tilia Manchurica, Rupr., of South Siberia might be tested.

TILIA EUROPÆA, L.
The common Lime of Europe, extending naturally to Japan, the large leaved variety of South European origin. Height up to 120 feet, exceptionally 50 feet in girth. The wood pale, soft and close-grained, sought for turnery and carving; the bast excellent for mats.

ULMUS ALATA, Michx.
The Whahoo Elm of North America. Height of tree 30 feet; wood fine-grained.

ULMUS AMERICANA, L.
The White Elm of North America, a tree fond of moist river banks, 100 feet high; trunk 60 feet, 5 feet in diameter.

ULMUS CAMPESTRIS, L.*
The ordinary Elm, indigenous to South Europe and temperate Asia, as far East as Japan. Several marked varieties, such as the Cork Elm and Wych Elm exist. The Elm in attaining an age of several centuries

becomes finally of enormous size. The wood is tough, hard, fine-grained and remarkably durable, if constantly under water; next to the Yew, it is the best of European woods, where great elasticity is required, as for archery bows. It is also used for keels, blocks and wheels. Bast tough.

ULMUS FLORIDANA, Chapman.

The West Florida Elm, 40 feet high.

ULMUS FULVA, Michx.

The Slippery or Red Elm of North America, 60 feet high; wood red, tenacious.

ULMUS RACEMOSA, Thomas.

The Cork Elm of North America.

[*The End.*]

ON THE PHASEOLUS CARACALLA.

BY WM. SELTER, BARDSTOWN, KY.

In your monthly hints for October, in the *Gardener's Monthly*, you draw the attention of your readers to two climbing plants, which have done well in the open air last summer. There is another very interesting one which deserves to be more generally cultivated; it is the Snail Flower or Cork Screw Bean as it is called here, Phaseolus caracalla. The flowers are very peculiarly shaped, from which it has its common names; the color is white and purple, besides it is very fragrant. It will cover a good space of trellis work in one season, and the flowers appear in great numbers from the latter part of August until frost, when it should be cut down, the roots taken up and preserved during winter free from frost.

Last fall I lifted a half a dozen Tuberoses, and potted them in six inch pots, with the intention of getting them in bloom during winter. On account of the moderate heat in the greenhouse, they did not draw up their flower stalks in time, so I emptied all out except one. In early spring this one started to grow very vigorously, and during summer attained the height of eight feet, and had 164 flowers on it, all very perfect and double. In the open ground I had several with two and three flower stalks to one root, a fact which I never noticed on Tuberoses before. During winter I kept the roots all near the flue in the greenhouse; the temperature was never below fifty degrees.

RHODODENDRONS AND OTHER NOTES.

BY D.

In your March number I see one of your Kentucky subscribers desires some instructions about the growing of that most beautiful of shrubs, the Rhododendron, stating that he has been most unfortunate in losing his plants though they bloomed finely in the first year. You explain in your answer to him, where he likely failed; you speak of fine soil, of planting on the surface of the ground, but you omit to tell him that all such plants as Rhododendrons, Azalias, Kalmias, Ericas, will not grow West of the Alleghany Mountains, on account of the soil being so much impregnated with *lime*, the poison to all plants, which require peaty soil. I can speak from experience. Importing or purchasing east the finest specimens I could find, I planted them on the surface of the ground in the best prepared soil I knew of, shaded the plants or exposed them to the sun, was careful in the watering, yet after two or three years, they would die. I then got the peat from New Jersey, and again prepared my bed carefully in the garden, planted some Rhododendrons in large pots, and had the pleasure of seeing my fine plants bloom a year or two longer than before, but at last the lime poison reached them, they became sickly, and as of necessity, not receiving the food which nature had provided, they also died.

Though I have often been gladdened with a charming display of Camelias and Azalias, I am yet of the opinion that our hot southwestern climate, our dry atmosphere in summer, but more so the lime water, will not permit us in the west to raise as fine Azalias and Japonicas as I have so often admired in your eastern cities. But when we cannot rival you in some of these fine plants of the floral kingdom, our hot summers permit us to excel in what is called "subtropical planting." It would have gladdened your heart to have seen my spendid Wigandia, 14 feet high, with its symmetrical mammoth leaves; Calladium esculentum, planted in soil heavily manured and daily watered, and planted singly, make a fine display; so Yuccas, Cannas, the different Coleus, especially the old and yet best, "Verschaffeltii," Achyranthus, Pampas Grass, &c., &c. Of Roses, I have partially succeeded in grafting some of the best of the "Remontants" and "Bourbons," on Rosa canina, thevery cold winter of this year however, has killed some of my best plants, such as Gen. Jacquminot, Senator Vaise. The Bourbons I had buried quite deep in soil, and cannot say whether they have been touched by king frost; they are of the Souvenir de Malmaison sort, and have bloomed un-

surpassingly beautiful for the last few years; they come from the nursery of one of the best rose cultivators of Germany, Fr. Harms, Eimsbutul, near Hamburg.

But I have said too much about my little experience, and in concluding these hasty lines, I must thank you for the most valuable information which the excellent *Monthly* has given to me for so many years, and for the pleasant hours I have enjoyed in reading its pages.

EDITORIAL NOTES.

BY THE EDITOR.

Sarracenia purpurea for the Small Pox. As this disease is now traveling about, the old notion that the common pitcher plant is a good remedy for it, is traveling after it in many leading newspapers. There appears to be no ground whatever for the prevalent newspaper run in this case. It is likely that some wiseacre wondering why our Southern *Sarracenia variolaris* received its specific name, concluded that it was because it was good for *Variola*, and hence started the paragraph on its rounds. The leaves of this plant are simply pitted like small pox. It has been, however, tried and failed, and perhaps indirectly caused deaths, as, if better remedies had been used instead, the patients might have lived.

The Color of the Gold Fish. The Schuylkill River in Pennsylvania, is becoming filled with Gold Fish. Many years ago there was a fine Garden, at what is now Fairmount Park, Philadelphia, belonging to Mr. Henry Pratt. During a heavy rain, a pond overflowed, and the fish in it got into the river. They are now very numerous in a wild condition.

Mr. Darwin has a theory that color is a means provided by nature to either prevent enemies seeing, or if noxious to others, to aid these others in seeing and avoiding them; in other words, for their protection.

The Carp of China, is a dark fish, and this gold color is a departure from the original dark color. One would have supposed that the gold color would be a good guide for other "fish eaters," to see this fish and thus keep it down, but "Pyrrhonism" has not hurt it in the least. The Albinos, or Silver fish, do not increase so fast as the Gold ones; but this does not appear to be so much on account of their destruction by other tribes of fish, as by their inherent inability to increase rapidly. The reversion to the dark original sometimes occurs, but even these do not seem to increase much.

Sequoia gigantea. A correspondent of the London *Gardener's Chronicle* notices that plants frequently die there in summer time as they do here.

Double Blue Polyanthus. X. Y. Z., Brookline, Mass. There is a double English Primrose, *not Chinese;* but we have not seen it for many years. The double white is in common use for cut winter flowers.

The Garden. Mr. W. Robinson, who, it will be remembered, made a tour of the United States in 1870, has established *The Garden*, an excellent serial in London.

The Nurseries of Ghent, in Belgium. It is said there are two hundred Horticultural establishments in this city. The Camellia is said to be one of the leading trade features.

A NEW DOG STORY.

BY J. J. S., PHILADA.

The writer possesses a superb carriage Dog, who has been the mother of many litters, more or less like herself in instinct and markings. One little fellow was sent to New Jersey for the grandchildren to play with, when only a few weeks old. He passed through Philadelphia in a covered basket, but soon assumed his due proportions of older doghood, and began to follow the family coach. On one occasion he accompanied the children and nurse to the steam ferry, on the Delaware, at Camden, here a mile or more wide, and followed to the city house near Broad street, the centre of the great city. The basket tour and this visit, were his sole acquaintance with town life, for which he seemed to have acquired a taste, as on the next occasion he was seen by the family on the Jersey wharf, just too late to jump on board, and was thus left behind. What was the surprise of the family on arriving at the door, so far up town, to see him quietly reposing on the steps, where he had been but once, and starting with delight when he recognized the party. He must either have waited for the next boat, or gone to another ferry a square off, and taken passage, have traversed thirteen squares by some instinct unknown to us.

His last feat was equally interesting. This breed of dogs attach themselves to the horses of their master's, in whose stable they prefer to sleep. A few days ago, I drove his former night companion to a farm, to endeavor to exchange

an old horse for a better. *Sport*, as always, followed; the bargain was made, the old horse taken out of the gears, and the new substituted. *Sport* watched the process with extraordinary attention, and when the lines were taken to drive away with the new purchase, was most sadly puzzled whether to follow the old horse, who was making for the farmer's stable, or to resume his usual place under the carriage. His anxiety was so great that he stood upon his hind legs, and gave a most peircing look at his master and the well-known wheels, and took his old position, perfectly convinced where his duty lay.

ORNAMENTAL HORTICULTURE.

BY CHRONICLER.

The ornamental department of our Horticulture has made such rapid progession the past ten years, as to awaken the ingenuity of inventors and skill of artists, who have furnished us with many charming devices, which give additional lustre to our good works; that with increasing introductions of new species of merit, and varieties of excellence, have raised the profession to a higher standard in the estimation of an admiring public.

Galvanized Wireworks may be placed in the foremost rank, as they serve for so many purposes. Fancy frames of various forms and dimensions to train up flowers upon. They are used instead of willow-work in edging "basket flower beds," and give them greater elegance; Arbors and Seats of great beauty are made of them. We also line walls and ornamental verandahs with them, to clothe with flowering vines. Gay fences are made of them to enclose the more tasteful compartments of pleasure grounds. They look sleek when naked, and charming when clothed with the foliage and florescence of flowering climbers.

Rustic Stands and *Hanging Baskets* of ingenious make and glossy finish, when filled with living ornamental plants, add a new link of enchantment,—and so with *Rustic Seats*.

Vases are older than our memory; but they were never before so numerous and diversified, and never before now had we so many lovely species and varieties of plants to grow in them. They give elegance to the grounds.

Statuary is also of ancient origin. Where well executed and judiciously arranged among the living ornamental plants, imparts a graceful liveliness to the grounds.

Rockworks: artificial Rockworks are also of ancient origin; but Mineralogists never before could furnish us with such a great diversity of beautiful rocks as they can do now; and never before this time could Conchologists give us so many different kinds of glossy shells of splendor to mix with the stones in ornamenting our artificial rockworks, and never before had we so many beautiful species of creepers and succulent plants of upright growth as we have now to clothe and decorate our beautiful rockworks.

Aquatics: Hydraulics and the art of Plumbing have attained such a degree of perfection, that we can have artificial lakes, ponds and fountains anywhere; and we have very many beautiful species of water plants to grow in or about them. Our water tanks in glasshouses, with the great *Victoria Regia*, &c., are in advance of all ancient time. But we are far behind the nations of Europe in ornamental gardening, aquatics out-doors. Many of those who have had the improving of ornamental grounds heretofore, seem to lack the knowledge how to convert springy spots into beautiful ponds, and to decorate them with beautiful growing plants. Instead of that they have gone to heavy expense to *drain* springy spots to carry off the waters from them. It is *shortsightedness* to imagine that where broad rivers and creeks run through the grounds, that artificial lakes, fountains and ponds are unneccessary in Ornamental Horticulture.

Mowing Machines are the finishing inventions to keep finished ornamental grounds in good condition. Many different kinds have been invented; the one named *Philadelphia* is superior to them all, and is *perfection*. There are various sizes for one man to work, and as many sizes for horses to work. So by them, the grass edgings of flower beds and grass plats in small yards can be conveniently mown with the small size, and the broad acres of rural domains and extensive parks, can all be mown with the larger sizes drawn by horses.

"Our lines are fallen in pleasant places," our motto is, *onward*, we know of no such word as fail.

[Our correspondent, "Chronicler," has our best thanks for his frequent contributions to our pages. His hints are always to the point, are generally seasonable, and are always read with interest by our readers.—ED.]

EDITORIAL.

TOO MUCH WATER.

There is nothing which at first thought seems more startling than the proposition that water is not the food of plants, and that in a general sense it is rather an enemy than an aid to vegetation. True, some plants grow in water; but these plants seem to require little. If we cut a water plant across, much less juice is found in it than in those which grow on arid plains. Indeed we see at once that this must be so in the nature of things. A plant exposed on every side to arid atmospheres, must evaporate largely, and need a great supply. A plant under water cannot evaporate, and hence water in its structure is useless to it.

Plants take up the matter which form their juices in the form of vapor, not as water. The soil in which plants grow during summer is damp, not wet. We may take this soil and subject it to severe pressure, but not a drop of water can we squeeze out; yet the plant takes the elements of water from it, and as water, we find these elements in the stem structure.

The rapid carrying away of water from the soil, is the foundation of the modern practice of underdraining; and the removing of the roots from all contact with water, and the preserving them from its deleterious influence is always an aim with the good cultivator.

While life is dormant, water does not seem to injure it. The seed of the water plant will lie for a long time in the cool mud at the bottom of the pond. But as soon as the breath of spring warms it into life, it sends up its leaf stalk rapidly to the surface, there unfolding its blade above the watery element. The seeds of land plants have not this rapidity of upward growth. The little germ meeting water as it unfolds, is sure to rot at once, unless the water passes away as rapidly as it falls Myriads of seeds sown in the earth, never come to the surface. A little water standing about the germ for an hour or so as it pushes, rots it This is one of the secrets of light sandy soil in which to sow seeds The water rapidly passes away. Also is it the secret of success with those who sow seeds on the surface, rather than below the level of the ground. The earth between the rows or in the alley ways employed o cover the surface sown seeds, always leaves them above the water line. They are damp but never wet, and they usually grow.

So also with those who plant trees. It is well known that trees must not be set deep. If the roots are deep, they are in water longer than when they are near the surface. The heavier the soil, the worse it is for the deep planted tree; and the finer and more delicate the roots, the worse they are when deep planted. Trees with forky roots, such as the Oak and the Standard Pear, suffer very little by deep planting, unless the soil be very wet. They may be at the bottom of a hill, where the washings of the hill will make an annual deposit, covering the surface roots several inches a year without any injury, while finer rooted plants, like an Arborvitæ or Hemlock Spruce, would soon die under these annual inflictions.

In fact, the finer the roots, the nearer the surface should all things be planted, and some of them indeed should be like some seeds, placed entirely on the surface, and the earth drawn up over the roots, instead of the roots being placed beneath the surface of the level soil, or in ordinary planting. People often say that the beautiful spring flower, the trailing Arbutus, cannot be made to grow when cultivated; but this is simply because in replanting we set the roots beneath the level instead of above the natural surface. The Kalmia and Rhododendron also of this fine rooted character, require to be planted above the natural level, in order to guard against too much water.

Let every planter of trees or fruits, beware of too much water.

NOVELTY IN NORWAY SPRUCES.

A magazine like the *Gardener's Monthly*, designed to be progressive rather than to teach the merest alphabet of gardening, cannot often stop to dwell on matters which every one knows. A Norway Spruce is surely a common thing. There is no one amongst our readers who do not know it. Yet it may be worth while to take a look at an old thing once in a while. The plant may not be new, but there may be novelty about it.

Much as any one may have admired the Norway Spruce for its beauty of growth and graceful

habit when at middle age; it may be questioned whether many have seen it when in May it is covered with its beautiful crimson buds, which afterwards develop into the seed cones. If there is anything more beautiful in nature at this season we have not seen it; and no one once seeing but would give a good deal to possess. All Norway Spruces, however, are not thus beautiful. Of some two dozen specimens about 25 years old, in full view of where we write, there are but four which have this additional attraction; for though the plant is monœcious, that is, has the male and female flowers on separate plants, some of the plants have a disposition to have more or less of one than another. Those mostly male have at this season a very rusty look. The little yellowish brown male flowers cover the weak branches, and the whole thing looks covered by powdered rosin. Here and there there may be a crimson female flower, but they are so rare as to make no show. But here is the robust tree, with very heavy foliage, and thick stout branchlets,—the heavy massive growth bearing the thick main branches to the ground; and this is the living bouquet of rich flowers already referred to.

We hear many say how much they would give if they could only select such trees when young, instead of waiting twenty years or so, in order to see what sort of a prize they had drawn in the lottery of nature. But such have not been readers of the *Gardener's Monthly*, or if so, careless ones, because the whole secret of selection in these cases was fully explained in a paper on sex in plants, read before the American Association for the advancement of Science, by the Editor, and published about that time in this magazine. There it was shown that in trees, those with the highest degree of vitality had a greater feminine character, and in the Norway Spruce those with the highest conditions of vitality pushed into leaf first. By this rule any one may select from a block of Norway Spruces, those which will in time have this beautiful blooming character. The early leafing plants are the trees to take.

Thus we find that even in so old a topic as the Norway Spruce, we can yet find matters of novel interest. But even this is not all. There is much in habit and other characters on which much more might be written, and which few have observed; and we would suggest to our lovers of trees, that while it is all right, and proper to seek to add every new variety to their lists, it may not be amiss to watch for the rarer beauties which may be developed from common things.

HOW HARDY TREES ARE KILLED BY FROST.

It is hardly to be expected that reasoning which flies in the face of generally accepted opinion, will at once replace old ideas. But one who values nature for her own sake, and not for any profit or honor she may have to bestow on him, can well afford to wait till the world is ready to hear. Yet when a principle is clearly perceived on which so much of practical good might result, the discoverer may be pardoned if too enthusiastic in seeking the world's acceptance.

It seemed clear to the writer, many years ago, that there must be two ways in which plants were destroyed by frost; one in which as in a Geranium, or other tropical succulent plant, the sap freezes, and expanding as it froze, left a disrupted tissue, a rotten disorganized mass; the other a simple loss of heat, which can only exist in a vital state in plants in connection with moisture, and which moisture when dried out by frost, left the plant cold in death. *Hovey's Magazine* was the great battle-field in which the conflict of ideas with established opinions first took place. The editor of *Hovey's* and several highly esteemed correspondents entered the lists against the writer of this. It was held to be heretical that moisture in the atmosphere, or moisture in any way, had aught to do with our winter losses. Subsequently, Dr. Lindley, in *Gardener's Chronicle*, took up the subject of the disruption of cells by frost, and the writer felt that his time had not yet come.

A few years ago, the *Gardener's Monthly* again ventured to show that it was evaporation, and not the mere degree of frost which destroyed usually hardy things; and as before came the attacks of those who choose rather to borrow lights from the tapers burning in the vaults of dead but honored names, rather than open their eyes in the daylight of facts which surround them. Even men, or at least, one man bearing the usually respected title of "Professor," descended to low scurility and abuse of the editor personally, for the views advanced in this magazine. But the day of justice has come. The immense losses of the past winter, and their connection with the drought, both in the ground and in the atmosphere, is now so manifest, that every daily and weekly paper in the land is showing the influence of drought on the winter losses. We suppose even "Professor" Featherman himself will now understand that it does not require a man to be "convinced against his will" in order to believe it

Those who have observed the details of the "freeze," can trace the drying out step by step to the death of the trees. Up to March, no injury was done. Grafts from tender trees in the open air were taken for greenhouse propagation. These have all grown and done well; but the trees from which they came are dead. Here is the clear proof of the exact time when the injury occurred. About that time we know how the thermometer went down for two days and two nights, to from zero to five degrees below,—how there was no thaw on the surface; how the frost went down from 18 inches to two feet deep and how a dry cold north wind prevailed all the time. Millions of plants were killed, plants which time and time again had endured 10, 20, and even 30 degrees below zero unharmed. The temperature then can have had no influence; our position on this point is impregnable. That it is a question of moisture rather than of temperature, is capable of demonstration. Here is a lot of Tulip trees about one foot high, and the roots a foot deep, every one of these thousands in rows, are killed. Here adjoining are some thousands three to four feet high, with roots twelve to fifteen inches deep; these also are dead. Adjoining are many hundreds six to eight feet high, with roots near two feet below the frost line; they are entirely uninjured. *So it has been in all instances* wherever a tree has had any considerable part of its roots below the frost line, there has been no injury; and those trees with an immense mass of small roots near the surface, such as Hemlocks, Spruces, Arborvitæs and similar things, have suffered most, and these to the greatest extent where the frost had a chance to penetrate the deepest. Almost all tap rooted plants, no matter whether with a tender reputation or not, went through the ordeal unscathed.

But we shall not pursue these details further, for we have for our next number communications from Mr. Josiah Hoopes and Mr. Sargent, which will furnish more than we can say here. Our leading point is to show once more, and for all we hope, that one of the surest means of keeping plants hardy, is to preserve them from excessive evaporation.

SCRAPS AND QUERIES.

SKILL IN CULTIVATING FRUIT TREES.—*Mr. Conrad Ruber, of Philadelphia*, who gives considerable attention to training trees in Espalier and other forms, writes: "The principle of cultivating trees has not been properly studied in this and many other States of America, and the attention which they require has been to a great extent neglected, simply because not throughly understood; hence it has found but few admirers, and little favor with the public, and produced a prejudice that a good result could not be obtained. Less than twenty years ago the same idea prevailed in most parts of Europe, but the problem has been happily solved, and there exists now in Germany and France, a universal sentiment that there is a principle—a proper law—governing the transplanting and cultivating of trees, grapevines, flowers, shrubs, etc. In most of the large cities of Europe, there are Institutions where this principle or law, is made a special study, where gardeners, botanists and nurserymen are educated in this noble and beautiful science and art. Scarcely any family of *note* or *wealth* will employ a gardener who has not a through education, both practical and theoretical, and has not made himself master of his profession. There is not a fence, a hedge or wall, whose top is not adorned with the choicest fruit trees of every species. The tree becomes healthy, the fruit larger and of a better quality by proper cultivation, and where the flow of sap is not hemmed. The spring cutting is not sufficient. Trees must be attended to during the summer and fall, which if the tree has been properly planted, requires but little time. Of grape culture the same may be said. The cutting of grape vines and tieing to the arbor is not enough. They require more care to perfect the fruit. The climate has not so much to do with the production of good grapes, as the care in cultivating the vine. For transplanting of trees, grapevines, etc., the fall season is the best, because the earth contracts and adheres closer to the fibres of the roots, and keeps them in a better condition. They grow faster, and are healthier than those planted in the spring."

ACER COLCHICUM RUBRUM.—A St. Louis cor-

respondent remarks that this beautiful maple is not of rapid growth in that section of the country.

SAP PINE.—*M. L. S., Frankford, Pa.*, writes: "In the Philadelphia lumber market, is a kind of lumber used for boxes and similar rough work, which in the yards is called "Sap Pine," and I am told that this is the exterior wood of the same tree as furnishes the floor board, or Yellow Pine, this being the interior wood. Is this information correct?"

[The "Sap Pine" we believe to be from *Pinus serotina*, which after all may probably be but a form of *P. rigida*, or as it is called in the north, Pitch Pine. The floor board, or Yellow Pine, is *Pinus australis*, a very different species.]

BOTANY IN NEW YORK.—Philadelphia has hitherto enjoyed a pre-eminence in botanical studies through the large herbariums of the Academy of Natural Sciences; but of late, New York city has shown a commendable activity in the pursuit of this interesting science. A modest but highly valuable periodical of but $1 per year, *Bulletin of the Torrey Botanical Club*, is very well supported, and the working botanists of the club have proved to be an active set of gentlemen. Recently, Columbia College has secured the herbarium of Meisner,—some 60,000 species, which with the already fine collection, will excel the Philadelphia one considerably. We congratulate our sister city on her good fortune in securing this prize.

SALT FOR ASPARAGUS.—*R. S, Pottstown, Pa.* "Admiring some wonderful Asparagus at a friend's in Philadelphia, recently, I was told that it was obtained through the use of salt on a piece of land, somewhere in New Jersey. In what way can I employ salt to get similar results?

[Salt has the power of rendering soil moister than it otherwise would be. In dry sandy soils, a moisture loving plant like Asparagus, is benefitted by its use. In a wet soil, or in a wet season, there is little good from it. No great quantity is used, say about a pound to a square rod. It is surprising that those who have garden ground in rather dry places, or exposed to dry seasons, do not make use of salt as a manure oftener than they do.]

LARGE ASPARAGUS.—*R. S, Pottstown, Pa.*, writes: "While on the subject of Asparagus, let me ask whether the Colossal Asparagus is a very superior variety?

[We have grown the Conover's Colossal, and are inclined to side with those who regard it as a distinct variety, and capable of reproducing itself distinct from seed. At the same time, we must say that we have seen as good Asparagus raised from the old kinds, as we have from these later new varieties; and we do not yet feel able to say that any larger or better can be raised from the new than from the old kinds.]

INDELIBLE INK FOR ZINC LABELS.—*A New York Correspondent*, says: "I beg pardon for trespassing, but would like to ask you for any recipes you may have for making an ink that will write indelibly on zinc tallies. If you cannot find or recall any recipes, please let me know where I would be likely to find some."

[The best thing we know of is first to let the label oxidize a little by dipping it in water for a day or two before using, and then write with a common lead pencil. We have seen labels in use for twelve years so written, as "black as ink," and with all the appearance of lasting for half a century. This plan was discovered, we believe, by Col. Wilder, and was first communicated to the *Gardener's Monthly* by a Cincinnati correspondent, now deceased, Mr. E. V. Petticolas.]

AMERICAN SEED OF THE EUROPEAN LARCH.—We stated some time since that we had never known any trees of the European Larch to produce perfect seed in America. An Ohio correspondent sends us a package, in order to show us "that we have not seen everything." Truly we have not, nor do we expect to,—moreover, we have not seen these perfect seeds yet; for *every one* of these were empty. Is it possible that those whom we suppose "have seen everything," do not know that a seed to be perfect ought to have a kernel in it! We have never said these Larches do not seed, but that we have not seen any.

BOTANIST TO THE DEPARTMENT OF AGRICULTURE.—Dr. C. C. Parry, whose abrupt dismissal from the charge of the Herbarium at Washington caused such universal regret among the best botanists of this country, has been succeeded by Dr. Geo. Vasey, of Illinois.

J. T. NORRIS, of Springfield, Ohio, is an-

nounced in a contemporary as "a contributor." Following so closely after the announcement in another of Mr. C. T. Crolie, of Plainfield, N. J. It must be highly encouraging to other "eminent" men. Mr. J. T. Norris, the editor tells us is "to receive and test articles sent to him." We supposed a considerable number of American nurserymen are already anxiously awaiting some report about the numerous articles he has already "tested" from them. What he has to say will no doubt be read with interest by them at least.

TEA ROSE, MLLE. RACHEL.—*E. Y. T., Richmond, Indiana*, says: "We sent you some days ago a few buds of our "Mlle. Rachel," which we think the finest Tea Rose in our collection. I hope you received them in such condition as to enable you to judge of the quality of the flower. We have Mr. Henderson's new Rose Bella in bloom, and think it does not at all compare with this."

[And truly a beautiful Rose, of a soft delicate lemon white color.]

ABOUT A COMMUNICATION.—In order to accommodate our advertisers, and yet have the Magazine appear about the first of the month, we have to send the department of communications to press often a month in advance, hence a communication if late in the month, has a good chance of lying near two months before it can possibly appear. In consequence, we have received the following elegant epistle, which is another contribution to the Elliott style of literature, and as such instructive. The communication referred to was struck off before this letter was received, or we might have attached this letter as a foot note to the other:

15th May 1872
Waverly P O
Baltimore Co Md

Mr Thos Meehan
Dear Sir

I wrote You more than two months since a short letter in reference to the Paper of Mr Saunders, on the Subject of Hot water heating, which appeared in the Gardener's monthly, the month previous and as you have not noticed it in the monthly I am not certain whether you received it, but as it contained my address in full presume that you did Our opinions not coinciding I took to be the reason of the letter not being noticed. That you receive every month many articles superior to the one in question which you have to consign to the waste basket for want of space &c I have not the shadow of a doubt there is however some difference in the motives which prompt people to write I need hardly tell you that I have not the slightest desire to appear in print and would not have written the paper in question had it not have been represented to me that I "ought to support the Gardener's monthly" that it would doubtless Show "a fair field and no favor" an opinion which under the circumstances I am unable to indorse I Promise however not to offend again So far as the pages of Gardener's monthly are concerned

I Am Dr Sir
Yours Respectfully
N. F. F.

LOCUST TREES.—A Virginia correspondent inquires what is the best kind of Locust for timber, and how best to sow the seed to make a Locust grove?

[The Yellow Locust, Robinia Pseudo acacia is the best. It is also called Black Locust. The other kind, Gleditschia triacanthos, or Honey Locust, is in no estimation for timber. We should recommend to raise Locust that it be sown in rows in a garden or farm for one year, and then transplanted where it is to go. But some sow the seed at once, thinly, scattering it, and suffer the plants to come up as they may.]

FLOWERING OF THE DARLINGTONIA CALIFORNICA.—We are very much indebted to Mr. Taplin for the first sight of the living flowers of this interesting pitcher plant. Many have had the living plants from California, but as far as we know, Mr. Taplin's skill is the first to bloom them successfully. It is scarcely so handsome as the Eastern pitcher plant, *Sarracenia* purpurea, but as a memento of one of America's most useful and most venerated Botanists, Darlington, its possession by horticulturists will always be prized.

MEXICAN BEANS.—*W. H.*, says: "Having recently met with a very extraordinary natural production called the *Mexican Bean*, I apply to you for information. I was told that it is so named, but it resembles a nut. It is of a hazel color, and has two flat sides and one round. It appears to grow three in a pod. I do not know how long—the few specimens I saw had been gathered. Their extraordinary peculiarity is,

that when they are laid on a table, they very soon begin to move spasmodically, as if there were some animal life confined within. I have met with no person who could tell me anything about them. One gentleman styled them *Hygrometric* Beans. Can any of your correspondents throw light upon this singular fact in Natural History?"

WILD CELERY.—*Mr. D. H. Jacques*, Charleston, S. C., furnishes the following interesting note in regard to the naturalization of the Celery: "I do not know what plant may be called Wild Celery in the waters of the Chesapeake; but true Celery (*apium*), grows wild in great abundance in our Southern marshes. Whether native or introduced I cannot say, but think it likely it has strayed from our gardens along the water courses. Plants from the marsh are sometimes transferred to the garden and cultivated."

CLOSE GLAZING OF GREENHOUSES.—A correspondent says: "Have you had any experience in bedding glass in greenhouses in white lead? I do not mean in the sash; of course *there* it works well enough, but how will it do to white lead the joints where the glass laps? In talking with Hitchings some time since, he said it would not do, but seemed to be unable to tell why. Can you throw any light on the subject? If it is practicable, it would certainly save a great deal of heat, more being lost through the laps than anywhere else, I believe.

[Mr. Hitchings is right. Close glazing saves heat; but the saving of heat is not the only requisite in good plant growth.' A Wardian case is close glazed—it saves heat—plants keep alive in them, but do not grow much. To get growth there must be evaporation of moisture from the plant; but a tight glazed house keeps in the moisture, checks evaporation, and prevents growth. There are times in the winter when the preservation of heat is our one great aim. We do not care so much at those severe moments whether plants grow or not. It is a victory if we keep plants alive. Then we should be glad to have an air tight house, but at no other time.]

HALESIA TETRAPTERA.—A correspondent encloses flowers of this and says: "A letter came to me to-day from my little daughter in New York, enclosing me the specimen which I herewith send, which she says came off one of the handsomest trees or shrubs that she saw in 'Central Park,' now in full blossom."

STAPHYLEA BUMALDA.—This is the name of the plant referred to by a Doylestown, Pa., correspondent, in the following note:

"I send you a specimen flower of a Japanese plant I have now in full bloom; about seven feet high, perfectly hardy, and one of the loveliest plants in my collection. Will you please name it? I have an idea it is a Staphylea of some kind. I have a fine specimen of Sciadopytis Verticillata, about 2 feet high, that has stood splendidly this winter, apparently quite as hard as Retinospora obtusa."

BOOKS, CATALOGUES, ETC.

FARM GARDENING AND SEED SOWING. By Francis Brill. Orange Judd & Co., New York.

Seed-growing has become an immense interest in America, and especially during the last ten years. Seed-importing was at one time the one thing needful to our horticulture; but the fostering policy of the Government, brought about, perhaps, not so much by choice as by necessity, as led to experiment and to success so great, that in the six hundred acres of the Landreths' down to the humble patches of thousands near all large cities, many hundreds of hands are annually engaged in the production of agricultural and garden seeds for the American home market. It is, therefore, a happy thought of Messrs. Judd to take in hand the publication of a work like this. It was found that there was "money in the garden" by one publisher, and they have justly concluded that there is also in the seeds which supply it. This little book will be widely read.

No better person, perhaps, could be found to get up a work of this character than Mr. Brill. He belongs to the second generation of a family that has made the business largely a specialty. The very errors of a book like this rather commend it. They show us that the writer has

confined himself to what he knows, and is really telling us of his own experience. For instance, when he tells us that the *best* dibble is a round pointed stick, with the handle across just as it grew naturally on the tree, and *not* an old spade-handle, we think we can see the bent back and that old dibble at work in the cabbage-patch, both pretty well satisfied with each other in the day's work. It is a better tool than the spade-handle, that is true enough; but that it is the *best* dibble, every reader of the *Gardener's Monthly* knows it is not. But, as we said, these errors give us faith in the book. The mere book-maker goes over all the serials, and copies all the good ideas. Of such is not Mr. Brill. He states the best that he knows, and of such always is a good book made.

THE FRUIT GARDEN. By P. Barry. New Edition. New York: Orange Judd & Co. Through J. B. Lippincott & Co., Philadelphia.

It gives us great pleasure, in connection with a work of this kind, to say a word about the author. It is often supposed that because a person is extensively known, no further need be said of him. As a rule of business, the firm to which Mr. Barry belongs must necessarily advertise themselves. They pay for their advertising. Any benefit they get from this is legitimately their own. The public has no right to any part of it. But in the case of Mr. Barry, we owe him a debt of recollection, of gratitude, and of esteem, separate and apart from his fame as a nurseryman. He entered into business with his excellent partner, as poor in wealth as any of us, but with a rich fund of intelligence and a thorough love of his profession. Energetic and full of business tact, he knew how to make money; but at the same time the love of wealth never overclouded the love of taste in nature and in art, and that proper public spirit which endeavors to cultivate to the widest extent a similar love in the community. But for Mr. Barry's having lived in America, the nurserymen of the country would not occupy the proud position they do to-day; and but for Mr. Barry's love of horticulture, his writings, and his public addresses, thousands who to-day taste of the pleasures of gardening would have found their life a dreary waste, with little of enjoyment worth living for. We well know that when Mr. Barry shall be taken from us, American Horticulture will mourn for him, as she did for the great Downing, and that their names will live long together in the history of American gardening. That day, we hope, may be far distant, but we have thought it but justice to Mr. Barry that we should, during his life-time, as the exponent of the feelings of American horticulturists, thus give expression to the thought which we know exists in thousands of friendly breasts.

In this new edition of "The Fruit Garden" Mr. Barry places us under a new obligation, for we suppose our readers know that, in these days of cheap publications, there is no money to be made by writing horticultural books. Young men, who hope to get fame; and others who trust, by the aid of the book publisher, to make it a useful adjunct to a sharp business operation, in a great measure occupy this field. There are, perhaps, a dozen honored names in this class of literature, but no more. These men do not write books for either fame or money. They have both, and the time spent in other avocations would bring them vastly more, even did they still need it; but they come forward, at some sacrifice of both, to serve the public; and it is in this position we find Mr. Barry with this new book to-day.

And now a few words about "The Fruit Garden" itself. Its chief characteristic is its clearness and its minuteness in the details of culture. In no work that we know of is so much told which the learner may want to know. No one, perhaps, can so well appreciate this public want as a nurseryman. He is the focus for all sorts of questions from those whom he deals with. To many, so much attention to detail would seem needless; but the nurseryman knows better, and Mr. Barry has taken advantage of his commercial position to give to the public just the matter the novice will most want to know, as well as that which will interest those well advanced in the fruit-grower's art. He has resigned to other pens the more descriptive parts. His lists embrace only the most popular kinds, and such that are pretty sure to be in general request. In this way his work comes into no competition with those of our best authors, but rather makes one of a complete series of American fruit works.

NEW AND RARE FRUITS.

GRIMES' GOLDEN APPLE.—(*See Plate.*)—We have on several occasions referred to this variety as one of great merit. It is hardy, produces abundantly, and bears regular annual crops. In one of our early plates, we selected Cornell's Fancy as one which would always do credit to the Eastern States; and looking about us for one to serve the West in the same way, we could think of no variety which had already been pretty well tested, and found to be so generally likely to hold its own as this one. We do not regard it as of the highest flavor, but in all other good qualities, think it is the equal of the best, and as near the average of perfection as people are likely to get in one single fruit.

THE MATILDA STRAWBERRY.—We are indebted to O. J. Tillson, of Highland, Ulster Co., originator of this strawberry, for a package of very fine plants received by mail in excellent order. We have heretofore given a favorable notice of this promising new variety, and have examined large plantations on the grounds of the owner. It has two very valuable qualities—the remarkable strength and vigor of the plants, and the large and attractive appearance of the berry; while its productiveness and good flavor are additional points of merit.—*Country Gentleman.*

NEW CALIFORNIA PEAR, FOX SEEDLING.—On the first of May we received from Mr. Fox, a specimen of this fruit. It arrived in perfect condition, and proved of excellent quality. It is brown and obtuse pyriform, of medium size; the flesh rather course, but with a very rich sugary flavor. We take it to be a strong rival to the Duchess of Bordeaux, which has hitherto seemed to claim the palm as a very late Pear. We congratulate California on this first great step to secure fame as a good state for seedling fruits.

THE HERSTINE RASPBERRY.—In relation to the hardiness of the Herstine raspberry, the agricultural editor of the New York *Tribune* says:

"The Herstine raspberry was raised in Germantown, Pennsylvania, and is said to be a cross between the Philadelphia and Allen. We first saw this new berry in bearing in the summer of 1870, and were pleased by its appearance, growth of wood, size, firmness, and quality of the fruit. The berries were larger, and of better quality than the Philadelphia. In the fall of the same year we received from the proprietor, a plant each of the Herstine, Elizabeth, Ruby, and Saunders. These plants were well rooted, and had each from twenty inches to two feet of wood in length. These plants were carefully "heeled in" in a sheltered spot, and in the spring, when it was time to plant, we found the wood of the Herstine killed to the point where it was covered. At this we were not surprised, because, very often, hardy plants will be injured during cold weather, when "heeled in," even in protected places.

Early in April of 1871, this plant was transplanted to a well-chosen spot, where the ground was mellow, deep, and in good heart, and every possible care taken to encourage a growth of wood. The plant sent up a single shoot, and this made a growth of three feet, eight inches during the season; at the close of which, and before cold weather set in, we carefully examined this young growth of wood, and as far as we could judge, it was matured to the extreme end of the shoot. The winter in the vicinity of New York has been a long one, but not unusually cold, with the exception of a few days. The cold weather set in a month earlier than usual. The ground became frozen deep enough to stop work about the 20th of November, and has kept frozen up to this date of writing (March 26th), at an average depth of twenty inches to two feet. We mention these facts to show what kind of weather the raspberries have to stand. In field culture of raspberries or blackberries, we have always noticed more plants injured from what is known as an open winter, than when the ground has kept frozen from December until April, which has been the case the past winter. Relating one's experience with new and valuable horticultural articles, is not always a pleasant task, for somebody's toes are sure to be trodden upon.

But the only way to arrive at the true merits of new plants or seeds, is for each one who can, to give to the public the results of personal experience. In our own case, we are sorry to say that the Herstine so far has not proved hardy. The three feet and eight inches of young growth which our plant made last year, we find now is winter-killed to the surface. The wood is as dead

as raspberry wood can possibly be, although as stated above, the winter has not been an unusually cold one, nor unfavorable for raspberries or blackberries. This is the sum and substance of our experience, so far, with the Herstine. If, at the end of another year, the young wood proves hardy, it will afford us pleasure to give the facts to the public."

[In very exposed places near Germantown, the Herstine has but a few inches of its tops destroyed, while Red maples, Tulip trees, Red cedars, and other things growing near were killed to the ground. The Catawissa raspberry also within a few hundred feet of those we refer to, were killed to the ground.]

THE LYCOMING GRAPE.—A correspondent of *Country Gentleman* says: "A grape is much admired in Williamsport, (Pa.) and the vicinity, which seems not to have been distributed elsewhere. From what I hear of it, and have seen, it appears to be worthy of attention and trial in other localities, where, among the many new sorts, so few prove really advantageous.

I have not had the opportunity of seeing the vines in fruit, but an oil painting of it represents a large bunch, broad shouldered; berries oval, like Isabellas and nearly as large, but light pink in color. A pale wine made from them is very agreeable in flavor, and it is the favorite sort for wine with the originator, Mr. Evenden, a nurseryman of Williamsport. The canes are distinct in their manner of growth; grayer in color than is common; they are close jointed, and the buds are round and prominent, looking as if of foreign origin, but the vines have proved quite hardy; they are not protected anywhere as far as I have seen; and it is said, have never failed of a crop, nor shown any tendency to suffer from mildew. This sort is called the Lycoming, from the name of the county in Pennsylvania in which it originated about twelve years ago.

DOMESTIC INTELLIGENCE.

VARIETIES OF THE PEANUT.—There are four great varieties of the peanut known to the dealers. The African, which is small and black; the Georgian, which is a little better; the North Carolinian better still; and the large Virginia peanut, which is best of all. The Tennessee peanut has three meats, but is ill-flavored. About 800,000 bushels were raised in the United States last year.—*Farmers' Gazette.*

PEARS FOR THE GREAT PLAINS.—Dr. William M. Howsley, of Kansas, names the following as varieties of pears best suited to the region from the Mississippi to the Rocky Mountains, and between the latitudes of 36 and 41 north: Of standards, first in every respect, the Bartlett; second, the Flemish Beauty; third, the Belle Lucrative; fourth, Buffum; fifth, Lawrence; sixth, Winter Nelis. On quince roots or dwarfs: First, Beurre d' Anjou; Second. Beurre Diel; third, Duchess de Angouleme; fourth, Easter Beurre; fifth, Louise Bon de Jersey; sixth, Vicar of Winkfield; seventh, White Doyenne.—*Western Rural.*

OSAGE ORANGE TIMBER.—The wood of the Osage Orange is highly valued in the South for carriage and wagon building. Changes of weather are said not to affect it, and wheels made of it stand a great amount of wear and tear without needing repair, while other wheels require to have the tires shrunk once a year. Vehicles built of this wood command higher prices by thirty per cent., than those of ordinary timber. The wood yields a beautiful orange dye, and it is proposed to attempt to obtain this from the sawdust, which is at present valueless.

We regard the Osage Orange as destined eventually to become of great value as a timber tree, both North and South. It ought to receive more attention for timber purposes than has heretofore been accorded it.—*Colman's Rural World.*

THE YELLOWS.—The St. Joseph *Herald* gives the result of the application of hot water and ashes to peach trees to eradicate the *yellows:*

The yellows which have been such a bane to peach orchards, promises so to continue no longer. Simultaneously from the East, South and West, comes word that the tree revives, puts forth new foliage, and ripens its fruit under the influence of hot water and ashes. John Whittlesey, Esq., was the first in this vicinity to announce the discovery of fungoidal disease at the root of the tree. Mr. Thos. Meehan, of the *Gardener's Monthly*, shortly after announced his investigation in the same direction. The investigation of Prof. Kediz, of Lansing State Agricul-

tural College, on the yellows, led him to the same conclusion.

We are safe in saying that the right direction has at last been reached in the investigation of this disease and its remedy. As yet the subject has not been exhausted, nor has certainty been reached in the eradication or cure of the evil. This, however, is certain, that the application of hot water and ashes has saved many trees. *Query*—Is this due to the action of heat alone; and if so, would not a peck of unslacked lime about the collar of the tree, well covered up, by slacking, produce heat enough to accomplish the same result?

Every tree in every orchard ought to have a pail of hot water poured around the collar of the tree every spring. This would accomplish two results, namely: It would kill the peach borer or grub, and arrest the yellows in its incipient stages. Either one of these results would amply compensate the labor involved.

PEAR TREES NEAR WASHINGTON.—Among several fine orchards of large, thrifty dwarf pear trees to be seen in this region, such as those of Mr. Saunders, Mr. Clagett, Dr. Buck, Chalkley Gillingham, and others, I have seen none that were breaking down or becoming defective at the grafting point; yet there may be such not seen by me, but they are almost universally growing so that the joint of grafting is below ground.

From no spirit of controversy, but as simple justice to the soils of Virginia and Maryland, I want to say, that during considerable travel and observation in the States of Pennsylvania, Ohio, Michigan, and other States further west, as well as in New York and New Jersey, I nowhere saw finer, better pear trees and fruit, whether for yield, fairness or flavor, than I have found in different counties of Virginia, and several counties of Maryland, and am satisfied that careful examination, for one or two years, will so convince any uprejudiced mind. I am interested in the discussion as to the effect of climate or seasons on fruit and trees, going on between your able "Valley Editor" and his neighbors. Good will come of it, as from all true discussions.—*Correspondence of Virginia Farmers' Gazette*

THE CHAMPION TREE-PLANTER OF NEBRASKA.—J. D. Smith, who lives four miles west of Lincoln, has the championship for tree planting on "Arbor Day." He planted at the rate of one tree per second, for nearly ten hours. The result was 33,550 forest trees. To Mr. Smith must be awarded the medal. It can't be possible that another man in Nebraska outnumbered the immense forest of Mr. Smith. If there is let him advise us of the fact, and we will gladly publish it to the world, giving proper credit and applause. Thus far Mr. J. D. Smith is the champion tree planter of Nebraska's "Arbor Day."—*Nebraska Herald.*

ENCOURAGMENT TO TREE-PLANTING IN MAINE.—The following act was passed by the recent legislature, and has become a law:

That any land-holder in this State who shall plant or set apart any cleared lands, or lands from which the primitive forest shall have been removed, for the growth and production of forest-trees, within ten years after the passage of this act and shall successfully grow and cultivate the same for three years, the trees being not less in number than two thousand on each acre, and well distributed over the same, then on application of the owner or occupant of such lands to the assessors of the town in which the same is situated, and is so successfully cultivated or set apart to forest-trees, and at the time of such application shall file with said assessors a correct plat of such lands, with description of their location, and setting forth all the facts in relation to the growth and cultivation of said grove of trees, or incipient forest, the same shall be exempt from taxation for twenty years thereafter; provided such grove or plantation of trees shall during that period be kept alive and in a thriving condition.

GERMINATION—ITS RELATION TO LIGHT.—The theory of the germination of plants, which has been heretofore admitted, requires that the germinating seed be excluded from direct sunlight. Late experiments appear to establish the fact that, while exclusion from the luminous rays of the solar spectrum is necessary to the healthy germination of seeds, yet the chemical or actinic rays are indispensable to that process. These penetrate much deeper into the soil than do the luminous rays. The exclusion of the chemical rays, and not the absence of oxygen alone, is assumed to be the cause of seeds failing to grow when buried too deeply in the earth.—*Report of Department of Agriculture*

FORESTS VS. DROUTHS.—I have read with some interest your several correspondents on the subjects of drouths, their causes, stock ponds,

&c. In looking over my few years' experience, since I have been old enough to observe such things, I am led to agree with your Illinois correspondent, Mr. Richmond, that our drouths are not caused by the cutting away of forests. My home was on the Grand prairie of Illinois for several years. I, too, am confident that more acres of that prairie region are now shaded with growing trees than there were many years since. My observations in regard to draining, reclaiming swamp lands, and tree planting, agree very favorably with those of Mr. Richmond. The past two years I have been farming here, in a heavily timbered country. My first season here was a very dry one, my next, dryer. On the 1st of April, 1871, I commenced a weather register. By the help of the good woman when I was necessarily away, a very accurate register for one year of the temperature at four different hours of the day, remarks on the weather, as to cloudy, clear, &c, and the direction of the prevailing wind, as well as the depths of each rainfall, has been kept.

As this rainfall register may be interesting to those who hold to the theory that large native growths of timber will generate and attract heavy water-falls, I give it here, as showing what may happen in countries favored with such growth of timber.

Water-falls for twelve months, begining April 1st, 1871:

April,	1⅜	inches
May,	4	"
June,	1½	"
July,	5⅛	"
August,	1½	"
September,	0	"
October,	3¾	"
November,	2	"
December,	1½	"
January,	0	"
February,	½	"
March,	4⅜	"
Total,	25⅝	inches.

I feel sure I have known as much water to fall upon the Grand prairie—almost out of sight of timber—in one week's time, as has fallen here during the past twelve months. Our fall of snow during the past winter has been about as lavishing as that of water during the year.—H. CALKINS, in *Country Gentleman.*

THE CITRUS JAPONICA—*A Hardy Dwarf Orange for Cool Climates.*—Many years ago, Mr. Fortune, the Collector of the London Horticultural Society, to whom the world is indebted for the introduction of many valuable plants, brought from Japan a dwarf tree of the orange family, (*Citrus Japonica*), called there Kum-quat. It is extensively grown in the colder parts of Japan and China, and would probably prove hardy at least as far North as Virginia. Mr. Fortune speaks of it as follows:

This species, long known to botanists, and to those who have visited Canton, was one of the plants which Mr. Reeves recommended me to send home to the Horticultural Society. In the south of China great quantities of it are grown in pots; and hence it is met as a common plant in the well-known nursery gardens at Fa-tee. It is, however, evidently of a more northern origin; for I met with numerous groves of it on the Island of Chusan, and elsewhere in that part of China, where it grew in far greater perfection than it does about Canton. It seems also to be largely cultivated in Japan, where it has been seen and described by Japanese travelers, such as Thomberg and Sieboldt.

The Kum-quat groves of Chusan are formed on the sides of the lower hills, in those situations where the tea shrub (*Thea viridis*) flourishes. The plants are arranged in rows, about four feet apart, and do not attain a much larger size than about six feet in height; from three to six feet is the size they are usually seen. A small kind of orange is also found in these groves; but good oranges, such as those known in the south, as Mandarins, and Coolies, are entirely unknown; indeed, the Chusan winters would be far too cold for them. This shows, therefore, that the Kum-quat is of a much hardier nature than any of the plants belonging to the orange tribe with which we are acquainted in gardens.

The fruit ripens late in autumn, being then about the size of a large oval gooseberry, having a sweet rind, and a sharp acid pulp. It is largely used by the Chinese as a preserve, and very frequently finds its way to England as presents to those who have friends in China. Preserved in sugar, according to the Chinese method, it is excellent.

In China, the Kum-quat is propagated by grafting on a prickly wild species of Citrus, which seems of a more hardy nature than the Kum-quat itself. This fact should be borne in mind when the plant is increased in this country; otherwise we shall have a comparatively hardy plant growing on a tender one.

Mr. Fortune adds that the Kum-quat groves on the Island of Chusan, (a cold part of China), were among the prettiest sights that came under his notice; particularly when the fruit was ripe, hanging in profusion over the bushes, and contrasting so well with the clear green foliage.

It would be best, no doubt, to propagate it by means of cuttings. Some Kum-quat trees were brought into this country soon after the introduction of the species into England by Mr. Fortune, but we are not aware that any nurseryman can now supply it. Will some one who has tried it, tell us something more about it?—*Rural Carolinian.*

THE PYRACANTHA.—I notice in your issue of the 14th that the Pyracantha has not proved hardy in your experience, and that your variety is red-berried. Our experience coincides with yours. The old Pyracantha, which has a roundish ovate leaf and red berries, is so tender here as to be worthless. The new variety called *alba*, has white flowers and light orange berries. Its leaves are small and narrow and it is very distinct in appearance from the old variety. Our climate is colder than that of Philadelphia, but during the past fifteen years, in one of which the thermometer was fourteen degrees below zero, the *alba* has not been touched by frost in the slightest degree. Our oldest specimens, some nine feet high, would have been fifteen except for trimming. Our newest hedge, three feet, is a picture of beauty, and we should like the pleasure of showing it to you.—S. B. PARSONS, in *Germantown Telegraph.*

FOREIGN INTELLIGENCE.

BOTTLING GRAPES.—I have been anxiously waiting to hear about the Grapes at Heckfield Place, since your correspondent gave us the intimation of what Mr. Wildman had done; and I congratulate him (Mr. W.) on his success, and beg to thank A. D. B. for the information as to the results. It may never fall to my lot to have an opportunity of imitating what he has done; but it may interest some of your readers if I relate my experience in bottling Grapes. At the beginning of December last it was decided that the vines of a late house must soon be pruned. The wood was ripe, the leaf had fallen, and stern necessity demands the vacant space for plants; but there were seventy bunches of Grapes hanging overhead—by far too many to be cut at once without some means of preservation. Having a large cupboard or press at my disposal, I procured the necessary number of bottles, and a supply of charcoal. Having cleaned and filled the bottles, we cut the Grapes, and inserted the fresh cut end in the water, then placed them in the cupboard. From day to day they were used as required, up to the middle of January, when, having but six bunches left of Lady Downes' Seedling, and each one looking so fresh and good, we determined on leaving them, to know how long they would remain fit for use. To-day, March 31st, the berries are quite plump, and quite passable in flavor, but the stalk is becoming dry.

But what an immense advantage to be able to keep ripe Grapes for even eight weeks fit for table purposes; and at the end of sixteen weeks we find the berry still firm and good; and with proper conveniences, no doubt they would hold good much longer. As stated by your correspondent, A. D. B., the method is not new, but "age demands respect."

And now that it is an established fact that Grapes can be kept a long time after being cut, I trust employers will observe the necessity of finding suitable accommodation for the purpose. How many a gardener has been put to his wits' end for some hole-in-the-wall, or some suitable place to store his choice fruits for a few days or weeks, as the case may be, after months of toil and anxiety to produce them, and to bear the bitter taunts of not having things when wanted, when a well constructed fruit-room would have made all satisfactory, and is as necessary in a garden as a well constructed vinery.—AMICUS, in *Gardener's Record.*

VARIATIONS OF FLOWERING SEASONS.—Fritsch has lately published the result of an investigation into the variations of the seasons of flowering of plants in different countries, in the

same year, and in different years; and basing his conclusions upon fifty-two plants and twenty-three stations, he remarks, that the variations of the seasons of flowering are greater, as this time naturally falls in the earlier part of the year. Thus, of plants flowering in March, the variation will amount to thirty-seven days; while of those flowering in June, it amounts only to twenty-four days. These variations, again, are, on an average, as great in positive seasons as in negative; that is to say, the acceleration of the flowering season, on an average, of each plant investigated, is as great as the retardation.

BRANDY FROM SAWDUST.—The fact has long since been known, that if cellulose is boiled with dilute acids, grape-sugar is produced, and a similar treatment of lichens, according to a process devised by Professor Stenberg is the initial step to the preparation of a very fair brandy. We now learn that quite a good brandy can be made from sawdust, generally from a mixture of the sawdust of pine and of fir timber. For this purpose, 9 parts of very moist sawdust, .7 of a part of hydro-chloric acid, and 33.7 parts of water, making 43.4 parts in all, are to be boiled together, under steam pressure, for eight hours and a half, after which the mass is found to contain 3.33 parts of grape-sugar, and after eleven hours 4.38 parts; in all, over 19 per cent. of the entire mass. The acid is now to be neutralized with lime, so that the mash, cooled and ready for fermentation, is to contain one-half a degree of acid, (according to the acetometer,) and a suitable amount of yeast is to be added. After ninety-six hours of fermentation, the mash is distilled, and sixty-one quarts of brandy of 50 per cent. of strength will be obtained, perfectly free from any smell of turpentine, and of extreme excellence of flavor.

THE COLUMNEA.—As pot-plants Columneas are not showy, and, moreover, under such treatment are apt to become infested with a rusty cankerous disease, which disfigures them very much. The usual method adopted for their culture is keeping them in pots, but it falls to afford any pleasurable return. To remedy this, and to induce these plants to display their beauties to the greatest advantage, I say grow them in baskets, potting, or basketing them rather, in a similar mixture of soil to that previously recommended for Hoyas and hanging them up in the company of the Æschynanthus; they will soon produce good shoots and blooms. The treatment may be the same as for the last-named genus, but with one exception, and that is the syringing; for as these plants have woolly stems and leaves, I have found, from experience, they are better without it, or, at any rate, they should be only occasionally sprinkled overhead, and that very lightly.

Columnea is a genus of Gesneraceæ, but the species belonging to it are not furnished with tubers of any kind. As far as I am aware, they are confined to South America. The flowers, which are produced on slender axillary peduncles, have a five-parted calyx, with a long tubular corolla and a two-lipped limb. These are freely produced, and not only are the individual blooms long-lived, but the plants flower in long succession.

When Columneas are grown as above recommended, the following kinds will be found to possess great beauty, and will well repay a little extra attention.

C. aurantiaca.—A somewhat strong-growing species, producing large flowers of a rich deep orange red. Native of New Grenada.

C. erythophœa.— This plant is magnificent when grown so as to form a good specimen. The leaves are lanceolate, oblique at the base, but with an acuminate apex. The flowers are large, with a broad spreading limb, and rich brilliant red in color. In addition to the corolla, the calyx, which is very large, is also blotched with deep red within. It is a native of Mexico.

C. scandens.—A smaller-growing plant than the last-named. The foliage is somewhat ovate, but inclining to taper to a point, clothed with soft hairs, and of a uniform deep green. The flowers are of a rich red and slightly hairy. It requires rather more shade than the other kinds.

C. Schiediana.—This is at once singular, distinct and extremely beautiful. Leaves oblong-lanceolate, and furnished with close soft hairs. Flowers upwards of two inches long; the ground color is yellow, over which are an immense quantity of streaks and spots of chocolate-brown. Native of Mexico.—EXPERTO CREDE, in *Journal of Horticulture.*

JAPANESE CHRYSANTHEMUMS. — In your notice of the Chrysanthemum Show at Stratford, in alluding to the Japanese varieties, you say, "The specimens staged were far from first-rate," and it is just possible that your reporter

was not aware of the wording of the schedule, which restricted the number of blooms on a plant to three, quality of bloom being the test of merit. Of course, this does not show the plants off to the best advantage. It is a move in the right direction to admit the Japanese varieties on the exhibition stage, but those who have been long accustomed to the perfect outline and form of the large-flowered varieties do not, at first, admire the weird and tasselled forms that are to be found in the Japanese class. There are now some very beautiful and showy flowers amongst them, and every year there is a marked improvement; new forms and new colors are constantly springing up; while in the large-flowered varieties and pompones there is very little or no improvement amongst new sorts. Your correspondent "G. G," in the same number of the magazine, gives it as his opinion that they ought to be exhibited "grown without stopping or training, with the exception of one stake to the main stem." I do not quite agree with him. I saw Mr. Little's plants at Stoke Newington, which, I presume, were treated in that way, excepting that the side-shoots also had stakes provided for them, which is necessary if the plants have to be conveyed a distance to the exhibition. Mr. Little's plants, I have no doubt, are well adapted for conservatory decoration, where smaller and dwarfer plants could be placed in front of them. As exhibited, the stakes and naked stems were very conspicuous. Japanese chrysanthemums may be exhibited in two ways—first, as at Stratford, for quality of flowers, in which case it is best to restrict to a specified number, in order that the exhibits may be fairly judged; or, secondly, shown as individual specimens to stand on their own merit, when they ought to be left to the judgment of the exhibitors, with no restriction whatever except size of pot. Some exhibitors seem to think that "dwarfing" is the main point, and the shoots are tortured and tied down to accomplish this; whereas exhibitors ought to aim at obtaining quality of flower, as one full-sized properly-developed bloom is worth a dozen such as are sometimes seen on specimen plants. I think the plants ought to be dwarf, and grown so that the training and stakes are kept out of sight as much as possible. There seems to be a want of finish and variety in all the exhibitions held round London, and, in addition to the chrysanthemum classes, it would be well to offer prizes for ferns and foliage plants. Such plants as Yucca aloifolia variegata, or some of the hardier palms on the centre table, or a few ferns to hide the pots and naked stems of the standard pompones and others, would be an improvement.—*J.* DOUGLAS, in *London Journal of Horticulture.*

CYCLAMEN PERSICUM.—The genus Cyclamen consists of several species and many varieties of dwarf, neat-growing, tubrous-rooted plants, very useful for greenhouse or conservatory decoration. As furnishing cut flowers, also for table decoration, there are few plants which can vie with well-grown and well-flowered specimens of Cyclamen persicum. Two or three flowers set on the plant's own leaves, which are remarkable for beautiful variegation, are extremely useful for bouquets, and when placed with their stalks in water, retain their beauty and freshness for many days. They are now extensively cultivated, and they will thrive in any light, airy greenhouse.

Any one desirous of cultivating them should purchase a package of seed of a choice strain. From a large packet a hundred or more plants may be raised for the price that one good named variety would cost. Under ordinary treatment, the seedlings will flower within twelve months of the time of sowing. Last April I sowed a half-crown packet of seed, and succeeded in flowering upwards of fifty plants, consisting of nine very distinct varieties, with finely marbled foliage. Some are in flower now, and will continue so for some time. I have been supplied with plants not nearly so good the first year as any of those raised from seed, and I therefore advise raising from seed in preference to purchasing plants. If named varieties are wanted, then, of course, we must purchase them; but some nine varieties in separate packets of seed can be obtained, and the varieties reproduce themselves truly from seed.

It is now late to sow the seed, but those who have not yet sown may still do so, and the plants will flower within the year. From the middle of March to the middle of April is the time I would advise for sowing the seed, always excepting when it is home-saved, and then I would sow it as soon as ripe.

The plants are kept during the winter in a temperature of 55° at night, with air on all favorable occasions. The most important point in their winter management is to keep them near the glass, not to water at the roots before the

soil becomes dry, and then to afford a thorough supply. Water should be given before the soil parts from the sides of the pots. The plants are benefited by a gentle sprinkling overhead morning and evening, except in very severe weather. A moist atmosphere is also good, but drip will soon ruin them.

By the middle of February the plants will be coming into flower. Any that are in pots less than six or seven inches in diameter, and not showing flower-buds, but with good foliage, should be placed in pots of those sizes; all throwing up for bloom should be removed when the flowers are expanding to a house with a temperature of 45° to 50° at night, or from fire-heat, and they will continue in beauty for weeks. They should have a light, airy position, and must be duly supplied with water. The plants not flowering, if continued in the warmer house, will flower later.

The flowering will be over in May. Remove the plants to a pit or cold frame, and give them water as required until the leaves turn yellow. I place mine in June in a cold frame, plunging the pots to the rim in coal-ashes. After the middle of June I withdraw the lights; consequently, it would answer just as well to plunge them in ashes out of doors after the middle of June. If I had cocoa-nut fibre refuse, I would use it in preference to coal-ashes, and cover the pots to the depth of from one-half to three-quarters of an inch. They are not watered after plunging.

The varieties of Cyclamen persicum can be grown without being placed in a warm house in autumn, and continued there until in the flowering state. Many cannot afford more heat than that of a greenhouse from which frost is excluded. In such Cyclamen persicum can be grown well, the treatment up to October not being different from that of plants placed in heat; afterwards the plants should be set on shelves near the glass, and kept only moderately supplied with water, giving none as long as the soil is moist, and when dry a thorough supply. The plants may, if necessary, be shifted into larger pots in October and February, for under cool treatment they will not flower until March or April.—*Journal of Horticulture.*

IRRIGATION FACTS.—In relation to irrigation in Italy it is said: In Lombardy water is sold at the rate of 500,000 gallons per season per acre, (equal to a single overflow of 22 inches deep,) as follows: Absolute purchase, about seven dollars per acre; annual rent in perpetuity, about $2.50 per acre. Water is also rented by the season when there is a surplus, at somewhat lower rates; but in such cases the land-owner is liable to be deprived entirely in times of drouth, when it is most wanted. The perpetual owner or lease-holder must be first supplied.

Land under irrigation in Spain sells for $500 per acre, while land lying alonside of it will scarcely bring $50 per acre. An organized company at Madrid, with a capital of $1,500,000, has reclaimed 200,000 acres, and the investments of the company pay dividends equal to 18 per cent.

SOURCE OF NITROGEN IN PLANTS.—It is well known that the quantity of nitrogen contained in the crops exceeds in enormous proportion that existing in the manures, the excess undoubtedly being derived from the air. It is now a question, whether this is extracted directly from the air by plants, which would thus have the power of assimilating directly, or if it is first taken from the air by the soil, so as to combine with organic matter and form an assimilable compound. According to Deherain, oxygen, in the presence of organic matter, combines directly with nitrogen to form a compound analogous to the humus of the earth, or to ulmic acid. To illustrate this, he placed in a tube oxygen, nitrogen, glucose and ammonia. On drying the tube and heating it, a black nitrogenized matter was left, and a portion of the nitrogen in the tube was found to have disappeared.

PREFERENCES OF CLIMBING PLANTS.—According to Mr. Henry, certain climbers evince a partiality for some particular species of plants, stretching out their tendrils and branches so as to come in contact with them, while to other species they have as decided an aversion, avoiding them, and never becoming attached to them, though they run up the surface of the wall side by side.

INCREASING THE VIGOR OF GROWTH IN PLANTS.—A very important announcement has lately been made in France as to the effect produced upon the luxuriance of vegetation by the disturbance of the natural position of the branches. It has been known for some time that if two branches of a fruit-tree be selected of about the same size, and the same upward in-

clination to the horizontal plane, and one of these be bent downward toward this plane, it appears to lose its vigor, while the other gains in a like ratio. It is now announced as the discovery of an ignorant peasant on the Danube, named Hooibrenk, that this law holds good only up to the horizontal position, and that if the branch is depressed still further, and below the horizontal, it becomes characterized by much greater vigor than before, and, in fact, will put out leaves and branches to an astonishing and unheard-of degree. But this depends upon keeping the branches as nearly as possible in a straight line, the effect being measurably lost with a considerable curvature. In this case, only the buds which occupy the top of the arc are developed completely at the expense of the rest, which remain in their original condition, contributing neither to the extension of foliage nor of fruit.

Duchesne-Toureace, in communicating these facts to *Les Mondes*, attempts to show the causes which seem to determine so great a flow of sap to the branches inclined below the horizontal line, and thinks that the explanation is to be found in the establishment of a siphon arrangement, by means of which the juice is carried over the bend from the main stem in excessive flow. Be that as it may, the fact remains, as illustrated by an experiment prosecuted by this gentleman. In early spring, when the sap was running in the vines, he took four plants of about the same size, and trimmed them so as to leave one stem to each, these being arranged vertically, obliquely upward; horizontally and obliquely downward. He then cut off the stems, and collected and measured what exuded, and found the amount from the branch inclined downward was more than three times greater than that from the others.

HORTICULTURAL NOTICES.

PENNSYLVANIA HORTICULTURAL SOCIETY.

At a meeting of the Committee of Arrangements of the Horticultural Society, held May 9th, 1872, it was

Voted, That, in consequence of the projected alterations in the hall, it is deemed inexpedient to hold a Floral Exhibition, as has been announced, in the month of June; and that the committee will recommend to the Society that the proposed public exhibition be omitted. Also, that the florists and gardeners be notified of this action of the committee.

PENNSYLVANIA HORTICULTURAL SOCIETY.

April Meeting.

This Society has shown exemplary endeavors, from time to time, to adapt itself to the continually changing conditions of horticulture and horticulturists. In times past, the monthly meetings were always well attended. Philadelphia was then but a country village, with all the best gardens and gardeners within a mile or so of the exhibition rooms. Fruits and flowers could soon be brought in and shown, and, after exhibiting, be taken home again the same night. But as the village grew to be the great manufacturing metropolis of the Union, with one of its streets alone having a direct paved line of sidewalks *fifteen miles long*, it is a day's journey to the centre of the city, and gardening being banished to the outskirts, the evening meetings cannot be maintained.

This season the endeavor has been made to have, instead, a few grand exhibitions, lasting a day or two. This makes it worth while for lovers of garden art and garden produce to bring in their articles. The trouble is the same as for a couple of hours, and the whole city sees them; for, to the credit of Philadelphia taste, a real exhibition by the Horticultural Society is sure to attract thousands of the citizens.

It was somewhat unfortunate for this inaugural move of the Society for a grand Spring Exhibition that it should have occurred during one of the most unfavorable seasons imaginable. It was nearly April before garden operations began. Nurserymen and florists were "driven to death" with deferred March business, and private gardeners and amateurs naturally begrudged every hour drawn from their gardens and greenhouses. But the true old spirit prevailed, and, in spite of

all these disadvantages, the exhibition was one to be classed with the many of which Philadelphia has been and is proud.

Amongst others who contributed on this occasion were: Mr. Gebhard Huster, gardener to J. B. Heyl, Esq.; Charles Smed, gardener to M. Bouvier, Esq.; James Rotter, gardener to M. Baird; Charles Nopple, gardener to Henry C. Gibson, Esq.; Robert Buist; David Fergusson; Hess & Warner; John Dick; Robert Scott; Miller & Hayes; W. K. Harris; Jacob Armitage; T. T. Mather; William Joyce, gardener to M. W. Baldwin; L. J. Eagle; John Magee; James Ritchie; John Bell, gardener to Paul Jones, Esq.; George Williams; Thos. Meghran, gardener to Howard Furness, Esq; Pennock Bros.; Alex. Newett gardener to H. P. McKean, Esq.; Mrs. Bissett; John Sherwood; Hugh Graham; H. A. Dreer; J. Beavis, gardener to Dr. Camac; M. Bayersdorfer & Co.; S. A. Harrison; J. W. Sherwood.

The chief contribution of Mr. John Sherwood was the glorious *Doryanthes excelsa*, the gigantic Australian Lily recently described in Mr. Harding's Australian sketches.

Among Mr. John Dick's plants was another interesting plant of Australia—the *Phormium tenax*—a New Zealand Flax; an excellent plant, by the way, for our present popular style of subtropical gardening. He also had a crisped form of the pretty Fern *Lomaria gibba*.

Mr. Buist exhibited a splendid collection of Geraniums, double and single. The Rose Tom Thumb was a general favorite. Also bouquet of Roses, Herzog, Coquette of Ghent, and others from his splendid collection of Azaleas.

Meghran's Cucumbers were wonderful to all who were not aware of that gardener's great skill as a vegetable-grower. The tables of the Horticultural Society for the past twenty years have continually borne heavy testimony to his success in this line.

Fergusson's display from the Laurel Hill Nurseries was particularly rich in Azaleas. The whole collection was one of the most attractive in the hall.

Bayersdorfer's display showed what great improvements have been made in the artificial adjuncts to a popular bouquet; and in the matter of art, mention must be made of the silver fountain of Mr. Hugh Graham, which was, by all odds, one of the most tasteful and attractive articles ever exhibited in the hall.

The collection of Mr. Henry C. Gibson contains probably more valuable plants, in proportion to its extent, than any in the Union. It was a great favor to the Society and to the public to get some of these on exhibition. Hundreds saw here, for the first time, magnificent specimens of such plants as Buonapartea gracilis, Yucca quadricolor, Areca Verschafeltii, Pincenectelia tuberculata, and particularly the very rare Agave xylinacantha in flower.

Mrs. Bissett is a rare lover of Ferns, and her collection contained numerous handsome specimens.

Pennock Bros. are famous in the department of Cut Flowers, and they had numerous tasteful examples of general and bridal bouquets, table designs, wreaths, crosses, and so on.

The old, but always welcome, Strelitzia regina reigned in Mr. Scott's collection, surrounded by the no less regal Fuchsia, of which he had many choice varieties.

Mr. Dreer had a charming collection of Roses, some of them new. Nor, indeed, is novelty much to be desired when such perfect old kinds as Hornet, Celine Forestier, Glory of Waltham, Jules Margottin and others of this ilk can be brought out in his lot, as these were. He also had Verbenas, Coleus and many other things.

Mr. Joyce and Mr. Newett had nothing particularly striking in new plants, but excelled even themselves in well-grown ones. The Spring Exhibition gave them a good chance to bring in more of the flowering and less of the mere leaf plants, of which the Fall Exhibitions are so prolific, and thus their collections were on this occasion particularly attractive.

Miller & Hayes is a rather new and very enterprising firm of Germantown, and destined to make their mark in the floral world. Their variegated and tricolored Geraniums were very well grown and beautiful.

Harris, who made his first exhibition of flowers a couple of years ago, still well maintained the reputation he gained the past two years.

Charlwoodia congesta, an interesting plant seldom seen, was, among other valuable plants, in Mr. Baird's collection, and Mr. Newett's was, as usual, very rich in Orchids.

Another such meeting is to be held in June, and, from all we learn, promises to be more successful than even this very successful one.

Too much credit can scarcely be given to Dr. J. S. Houghton, and other members who worked with him, for their great labors in getting up so great a show.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XIV. *JULY, 1872.* *New Series, Vol. V. No. 7.*

HINTS FOR JULY.

FLOWER GARDEN AND PLEASURE GROUND.

Every one of taste must have noticed how limited is the variety employed in garden decoration. In the majority of places, the Evergreens used are the Norway Spruce, White or Austrian Pine, the Arborvitæ and the Irish Juniper; among trees, common Poplars or White Maples, with now and then a Horse Chestnut, Linden, or a Sugar Maple; and in the way of shrubs, seldom more than a half-dozen, and these chiefly from Pyrus japonica, Spiræa Reevesii or prunifolia, Weigelia rosea, Deutzia gracilis, a Lilac or a Mock Orange. Seldom more than these. Yet a friend who is about starting an arboretum of hardy things in Michigan, recently told us that he expected to get about *fifteen hundred* species and well marked varieties for his collection. It would not matter so much if these popular things were the best, but they are by no means so. The popularity of a plant depends on factitious circumstances.

Large dealers who have an extensive assortment seldom single out any one thing for concentrated praise; but a small dealer—one with limited capital—takes one thing, and with all his force advertises and talks it up. A recent instance is that of Paulownia imperialis, which has been in the American trade for twenty years. It has never been very highly esteemed, though the tree does grow fast, the leaves large, and the flowers highly fragrant. But last year a Western man took hold of it, and nothing else, and, by a skilful display of these genuine facts, pushed off thousands for dollars, which before were a drug in most nurseries at as many cents. This is the way things get popular; and there are an immense number of old but beautiful things only waiting for some one to take hold of them and enhance their value by this kind of pushing treatment. One of these is the dwarf Horse Chestnut, of which we presented to our readers last year a handsome colored plate. Another is the Josikeæ Lilac, which we have also illustrated. The great beauty of this, unfortunately, only becomes apparent with age. At four or five years old, it produces only a few spikes; but these accumulate with age, until at ten or twelve it produces hundreds of its large violet-purple panicles. The leaves of this species are more like the White Fringe than the common species. A large bush in an isolated spot always commands attention. The Tamarix, White Wiegelia, Persian Lilac, Sweet Mock Orange and White Pyrus japonica are also among the class of plants not so well known as they deserve to be.

On account of the very dry spring which has prevailed through so wide an extent of territory, the time is coming when transplanted trees of the past fall and spring will suffer more than during any other part of the season. If they show a vigorous growth of young wood, no danger need be apprehended, as it indicates that the roots are active, and can supply all the moisture the foliage calls for; but if no growth has been made, no roots have been formed, and the leaves are living for the most part on the sap in the wood and bark, and hot drying weather will tell with injurious effect on such trees. This is generally first shown by the peeling off of the bark on the south-western side of the tree,—the most

drying aspect; and where such exhaustion appears probable, much relief may be afforded by cutting back some of the branches, syringing with water occasionally, shading the trees where practicable, or wrapping the trunk in hay bands or shading the south-west with boughs or boards.

Plants set against walls and piazzas frequently suffer from want of water at this season, when even the ground near them is quite wet. Draw away the soil around each plant so as to form a basin; fill in with a bucketful of water, allowing it time to soak gradually away, and when the surface has dried a little, draw in loosely the soil over it, and it will do without water for some weeks. This applies to all plants wanting water through the season. If water is merely poured on the surface, it is made more compact by the weight of water, and the harder the soil becomes the easier it dries; and the result is, the more water you give the more is wanted.

Keep the pruning-knife busy through the trees and shrubs, with the object of securing good form. Judgment will soon teach one which shoots would spoil the shape if not taken out. The pruning-knife will often save a tree when even the water-pot would fail.

In most kinds of soil the keeping the surface loose by hoeing and raking in dry weather will be an excellent method of keeping the main body cool and moist—admitting the air, which is a good non-conductor. In soils, however, which are deficient in loam, and in which sand prevails to a great extent, frequent stirrings have a drying tendency, and a mulching of short grass, or decaying vegetable matter of any kind, will be found very useful around transplanted trees, shrubs and other things. It must, however, be borne in mind that loosening the surface soil is not always pulverizing. After loosening the soil, some way should be found to press it firm again. It is the pressure which pulverizes, not the loosening.

Friends, writing from the West, often say, "We wish you would find something like your box edging of the East, which is not hardy here;" but hardiness does not depend on temperature, as we have often shown. If the proper conditions are complied with, we believe the Box will withstand any temperature, even to that of the North Pole. These conditions are rich soil, and shade from the sun in winter. The tree varieties of box are beautiful things for garden adornment. The Red Spider is a great enemy to them. We are not sure that the insect which goes by this name on our out-door plants is the same as our in-door one; but it is so near and so alike in its destructive powers, that it makes no difference in a practical way. A Box tree throughly infested is hard to clear of them. The best way is to cut off all green leaves early in the spring, then wash the plant with oily water in which sulphur has been mixed, and let it throw out a new set of leaves. Even then the plant will have to be watched for a year or two, and any straggling colonies destroyed before they increase much. These hints will apply to all evergreens which are liable to Red Spider. Its presence is easily known by the small yellow specks on the green leaves.

But these small insects may be kept down often by a garden engine. An occasional forcing of water over valuable specimens will generally clear out insects of every kind. A good portable engine should be an essential in every well-ordered garden tool-house.

We should like to call attention to a note we gave last year, that some beautiful objects for lawn decoration can be made of Wistarias, by training them as standards. A young plant is selected and trained to a stake six feet high. When the plant reaches this it is headed off. The second year the stake may be taken away, and the young plant will support itself. It will never make running branches after this, as it takes all its nutritive powers to overcome gravitation and sustain itself erect. A beautiful umbrella-like head is formed, and its hundreds of drooping flowers in spring thus shown off to beautiful advantage. Another point of interest to a nurseryman in this is, that with this check to growth the reproductive powers are called into play, and the plants then *usually produce seed abundantly*. There is hope for numerous improved varieties as soon as these facts become generally known. This is a very good season to train plants up for this purpose.

Many of the earlier sown annuals will be seeding now, and those flowers which opened first will make the best seed to save. Where seed is not desired, it is best to cut away all as it forms. The annuals will continue to bloom much longer for this care. In getting seed of Double Hollyhocks, much difficulty is often experienced. The petals prevent the pollen from falling on the pistel. It is best, therefore, to fertilize them by hand. They then produce as much seed as the single ones. Another advantage of this artificial hybridization is, that we

can get any color we please from seed. If, for instance, we want to reproduce the kind perfect, fertilize with its own pollen; but if we would raise new varieties, use pollen from a plant of different color from the one we employ for seed.

Those who wish for a good supply of window flowers next winter, should commence preparations about the end of the month. The Chinese Primrose, Cineraria, Mignonette, Alyssum and other desirable plants should be sown in pots, and kept in a cool frame until they grow. Most people fail with these beautiful plants by sowing too late. The Wallflower is a nice old-fashioned window flower, and cuttings of the double kinds should be struck at once. Cuttings of Geraniums and other things for this coming winter's blooming may still be put in.

FRUIT GARDEN.

In the fruit garden, if trees set out last fall or spring do not show signs of growing freely, cutting back a portion of the branches will make a great difference in their favor. It is a great point with good fruit-growers to have all the branches in a tree of uniform vigor. This can be gained by pinching off the growing points of the stouter ones, leaving the weaker ones to gain strength by the check to the others. Where the branches are likely to be too thick, some may be taken out while green, instead of waiting till winter to do it; not forgetting, however, that a loss of foliage is, in some degree, an injury to the tree; and, that as little of this should be done as is consistent with necessity. Some recommend trees to be pruned in summer, *because* the wounds heal better then. It is true the wound does heal better, but the loss of so much foliage is an injury not compensated by the healing of the wound. However, where the trees are young, and the branches to be cut away but a small fraction of the foliage, the injury is little, and the summer trimming is thus a gain. Nursery trees are best served in this way. Strawberries, Raspberries and Blackberries are "summer pruned" chiefly by thinning the suckers and runners. Strawberries are often grown in beds, and the mass of runners suffered to grow together as they will. This is the best way for parties who have little time to give to their gardens. When grown in hills, or with the runners cut off, something is necessary to place between the rows or the plants, in order to keep the fruit from getting gritty after rain. When they are in beds, the fruit keeps cleaner without much difficulty. But with this plan, the runners should be thinned out at this season of the year, leaving them only about three or four inches apart. Of course, we weed these Strawberry-beds; a large part of the runners should be treated as weeds and taken out at the same time. Raspberries and Blackberries should be served the same way. All the suckers not wanted to bear next year, should be taken out as they appear. If the kind be valuable, the young offsetts taken up may be transplanted any time through the season, by well watering and nipping out the young tender tops. About the end of the month it is often the practice to clip off the growing ends of Blackberries and Raspberries. It is said to stiffen the canes, and it renders stakes to support them in a measure unnecessary.

As to varieties, the *Gardener's Monthly* is occasionally regarded as slow, because it does not get off a sort of 4th of July oration with every new fruit that appears. The last meeting of the American Pomological Society was a very good endorsement of our course. In Strawberries, for instance, notwithstanding the immense number of new kinds, the old Albany Seedling was universally starred, and only the *very* new ones, not much known, received high praise. Pyrotechnic displays are very well, but when it is in regard to new fruits, we prefer for our readers rather to admire than to pay dearly for them. The very few new things that are likely to be of permanent value we try to keep our readers well informed about in the body of the work.

The time when Currants and Gooseberries mildew and drop their foliage is at hand. Some have found a mulch of salt hay to be good against these troubles, but, in fact, anything that cools the surface, and thus helps to keep the atmosphere about the plants, is good. A heavy mulch of old corn-stalks we have found to be excellent help to success in growing these fruits.

VEGETABLE GARDEN.

In many amateurs' gardens late Peas are valued. It is essential that they be planted in the coolest part of the ground. The Pea is a cool country plant, and when it has to grow in warm weather, it mildews. The Marrowfat class are usually employed for late crops. They

need support. All Peas grow better and produce more when grown to stakes. Bush Beans may be also sown for late crops. A very deep rich soil is necessary to tender, crisp pods. The Lima Bean will now be growing rapidly. It is time well spent to tie them to the poles as they grow. The poles should not be too high—about eight feet is enough. They commence to bear freely only when the top of the pole is reached.

The Lettuce is another cool country plant. It can only be grown well in hot weather when in very rich and cool soil. For winter use, Beets are occasionally sown now, and also Cucumbers for pickling purposes; but not often; and, at any rate, it must be attended to early in the month. Tomatoes trained to stakes give the sweetest fruit, and remain in bearing the longest; but many cultivators, who grow for size and quantity only, believe they have the best results when growing them on the level ground. Celery is the chief crop requiring attention. The great point is to get short thick-growing varieties, as the long kinds require so much more labor to blanch. The Boston market variety is, therefore, popular, and is really a very crisp and nutty-flavored variety. After so many trials with different ways of growing them, those who have their own gardens—amateurs, for whom we write—find that the old plan of sinking the plants in shallow pits is about the best. Trenches are dug about six inches deep, and three or four inches of manure then dug in, of which cow-manure is the best. They can be watered better this way in dry weather, when in these trenches, and it is so much easier to fill the earth about them for blanching purposes than when grown on the level surface. Soap-suds, as well as salt in moderate doses, is usually a wonderful special fertilizer for the Celery plant.

Late Cabbage is often planted in gardens between rows of Potatoes, where it is an object to save space. Some fancy that the Cabbage is better preserved in this way from the Cabbage-fly, which, they say, prefers the Potato; but on this point we are not sure. We do not think the Cabbage does quite as well as when it has the whole ground to itself; but of course a double crop could not be expected to be quite so fine.

COMMUNICATIONS.

EFFECTS OF THE SEVERE FROSTS OF MARCH

ON THE TREES AND SHRUBS AT WODENETHE, FISHKILL-ON-THE-HUDSON, N. Y., THE RESIDENCE OF H. W. SARGENT.

It would be very difficult to give with any certainty the cause of the severe damage done at this place upon almost every sort of vegetation without first recapitulating the beginning of the evil two years ago, in a very severe drought, so severe as to denude many trees of their foliage, in August and September; a mild and wet and somewhat protracted Autumn followed, during which many trees made a late growth and had not sufficiently ripened their wood at the commencement of cold weather. This was especially true of the late growing Conifers, such as Wellingtonias, Cryptomerias, Cupressus of various sorts, as well as Pears, which in many instances were in blossom in October. Fortunately the winter, with one or two early exceptions, was a mild one, and the injury done to the immaturely ripened wood was comparatively unimportant. Another dry summer, that of 1871, followed, causing irregular and imperfect growth, in many cases late into the Autumn. On the 20th of September there came a sudden and severe frost, late in the evening, cutting everything in the least tender to the ground, and even browning some tender tips of the late growing Evergreens. This was followed by mild weather for several weeks. But no doubt a demoralization took place in the circulation of many trees at this time, so that they went into their winter quarters not well prepared to resist any unusual condition of weather. Unfortunately a very unusual condition of weather came on the 4th and 5th of March in shape of hard dry cutting winds, with the mercury only four degrees above zero—at this time the ground, entirely unprotected by snow, was frozen to the depth of *three to five feet*, and of course perfectly dry, thus entirely preventing all plants, during this fearful evaporation from the excessive cold winds, from obtaining the slight-

est assistance in the way of moisture from the roots. For the next two days there came a surface thaw and some snow which melted soon after it fell, but the ground was so hard and the frost so deep that the water remained on the surface as on a floor, freezing at night and melting by day for a week, but totally unable to penetrate the ground. The roots of trees being held all this time as in a dry iron vice. This condition of weather coming upon plants so enfeebled by the condition of the preceding two years, caused, in my opinion, the severe damage which seems to have extended over all the Middle and Eastern States. About Easter the wind was so severe in force that no lantern could be kept lighted, and it was with great difficulty my gardener could get from one house to another, and all this time and with this excessive evaporation in the Evergreens, especially the broad leaved ones, the roots were encased in hard, dry frozen ground, where no moisture could get either in or out. Perhaps the most perplexing thing in the great damage done everywhere, is the extraordinary irregularity of the injury. Plants and trees heretofore considered tender even in the mildest winters, like Cryptomerias, Ilex latifolia, the newer Retinosporas, &c., are perfectly uninjured, and as fresh as they usually are in June, while others perfectly hardy (at least so considered) are killed. An old Beech hedge here is completely riddled; so likewise with a Hemlock and Norway hedge; a large Acer Campestre, (the common field Maple) 25 years old, killed; so is a large deciduous Cypress, 25 feet high; another by its side is uninjured; three large Abies Menziesii, 12 to 18 feet high, killed, though heretofore hardy in the worst season; beds of English Ivy on the ground, having the protection (heretofore considered valuable) of the warmth of the soil, killed; immediately adjacent, on a wall, hardly touched; Rhododendrons generally killed back though with some green wood—those protected by wooden houses have suffered quite as much. Evergreens as well as deciduous trees, standing side by side, of equal size, age, and apparent health, one taken and the other left, and yet Peach trees are not only an exception, but the amount of bloom upon them is greater this year than I have ever known for twenty-five years. To add to our perplexity we have not only lost our trees, but we have not learned any lesson from our misfortunes. We can only regard it as an exceptional year which, like an earthquake or deluge, may never occur again, but if it should, I do not see how we can prevent the devastation, even if we knew it was coming.

RHODODENDRONS.

Caractacus,	Injured
Charles Bagley,	Slightly injured
Charles Dickens,	Slightly injured
Guido,	Killed
H. H. Hunnewell,	Killed
H. W. Sargent,	Badly browned
James Bateman,	Killed
Lady Armstrong,	Injured
Lady Clermont,	Injured
Mrs. G. H. W. Heneage,	Badly injured
Mrs. John Clutton,	Good
Mrs. R. S. Holford,	Leaves gone
Old Port,	Killed
Othello,	Part gone
Purity,	Killed
R. S. Field,	Killed
Atrosanguineum,	Injured
Barclayanum,	Injured
Blandyanum,	Killed
Candidissimum,	Injured
Caractacus,	Injured
Concessum,	Good
Delicatissimum,	Killed
Fverestianum,	Pretty good
Fastuosum flora pleno,	Pretty good
Giganteum,	Good
John Waterer,	Injured
Nero,	Injured
Onslowianum,	Injured
Purpureum, elegans,	Partly killed
Purpureum grandiflorum,	Partly killed
Roseum elegans,	Browned
Roseum grandiflorum,	Browned
Roseum pictum,	Browned
Sherwoodianum,	Killed
Sir Thomas Sebright,	Injured
Titian,	Killed
Towardii,	Injured
Vandyck,	Injured

All seedling *Catawbiensis* generally very bad, though the wood looking green.

HARDY AZALEAS.

Half the wood and all flower-buds killed.

KALMIAS.

Generally untouched.

ANDROMEDAS.

Badly browned, but alive.

LEDUMS.

Killed.

RHODORAS.

Killed.

GAULTHERIAS.

Almost destroyed.

ERICAS—HARDY HEATHS.

Generally killed.

MENZIESIAS.

Generally killed.

DAPHNE cneorum majus, Killed

EPIGÆA repens, Killed

CONIFERS.

Abies	
excelsa clanbrasiliana,	Killed
" compacta,	Killed
" Gregorii,	Killed
" pygmæa,	Killed
" pumila,	Killed
" pyramidalis,	Killed
inverta,	Uninjured
canadensis,	Uninjured
Douglassii,	Badly cut
firma,	Good
Kæmpferii,	Good
Menziesii,	Killed
Hookeriana,	Good
orientalis,	Uninjured
monstrosa,	Uninjured
Picea,	
cephalonica,	Browned
grandis,	Good
lasiocarpa,	Good
nobilis,	Badly cut
Nordmanniana,	Good
magnifica or nobilis robusta,	Good
pinsapo,	Slightly injured
Pinus	
austriaca,	Good
Benthamiana,	Good
cembra,	Good
macrocarpa,	Good
Lambertiana,	Good
monticola,	Good
pyrenaica,	Good
Mugho,	Good
sylvestris pumila,	Good
Strobus pumila,	Good
Cedrus	
Deodara,	Killed
Libani,	Uninjured
Cephalotaxus	
Fortunii,	Uninjured
Chamæcyparis	
sphæroidea variegata,	Slightly cut
Cryptomeria	
japonica,	Hardly touched
Lobbii,	Injured
Cupressus,	
Lawsoniana,	Generally good
" erecta,	Generally good
" gracilis,	Generally good
Juniperus,	
chinensis,	Good
hispanica or thurifera,	Good
recurva,	Good
virginiana,	Good
" humilis,	Good
" pendula,	Good
Sabina tamariscifolia	Good
" prostrata,	Good
squamata,	Good
Swedish,	Good
Larix	
pendula,	Untouched
Kæmpferi,	Untouched
Retinospora	
ericoides,	Fair
leptoclada,	Excellent
obtusa,	Excellent
pisifera,	Excellent
" argentea,	Excellent
" aurea,	Excellent
" plumosa,	Excellent
filicoides,	Excellent
filifera,	Excellent
Sciadopytis	
verticillata,	Untouched
Taxodium	
distichum,	Untouched
" pendulum,	Untouched
Taxus	
the common English,	Browned slightly
Dovastoni or Weeping Yew,	Brown'd slightly
erecta,	Good
monstrosa,	Good
aurea,	Gen'lly uninjured
elegantissima,	Gen'lly uninjured
japonica,	Gen'lly uninjured
Thujopsis	
borealis,	Perfectly green
dolobrata,	Badly cut
" variegata,	Badly cut
lætevirens,	Good
Standishii,	Good
Thuja	
aurea,	Untouched
gigantea,	Badly injured
Lobbii,	Severely injured
orientalis,	Good
Tatarica,	Good
falcata,	Good

Thuja	
elegantissima,	Good
American Arborvitæ	Somewhat damag'd
Vervaneana,	Unhurt
pendula,	Unhurt
Warreana,	Unhurt
plicata,	Unhurt
Wellingtonia	
gigantea,	Untouched, every bud good

HARDY ORNAMENTAL AND FLOWERING TREES.

Acer, negundo variegata,	Killed
Beech, common	Badly injured
" cut-leaved,	Injured
Castanea vesca,	Killed
" aurea variegata,	Killed

HARDY EVERGREENS AND DECIDUOUS FLOWERING SHRUBS, &c.

Aralia japonica,	Good
Arborvitæ, American,	Very much injur'd
Aucuba japonica, (old kind),	Safe, protected
japonica, with berries,	Safe, protected
Berberis, aquifolium,	Badly cut up
Bealii,	Good
japonica,	Good
Fortunii,	Good
Broom, Yellow,	Destroyed
Cedars, Red Virginian,	All browned
Clematis,	Injured
Cotoneaster affinis,	Killed
Cratægus,	Injured
Daphne cneorum,	Killed
Euonymus japonica latifolia alba variegata,	Good
Forsythia Fortuni,	Good
Gynerium argenteum,	Killed

Hollies,—all American Hollies have lost their leaves, the wood is green.

Honeysuckles	Injured
evergreen,	Injured
late Dutch,	Injured
late Trumpet,	Injured
Magnolia conspicua,	Uninjured
Soulangeana,	Uninjured
cordata,	Uninjured
glauca,	Uninjured
gracilis,	Uninjured
grandiflora,	Uninjured
Lenneé	Uninjured
purpurea,	Uninjured
Thompsoniana,	Uninjured
tripetala,	Uninjured
Mahonia aquifolium,	Badly cut
Paulonia imperialis,	Good
Pavia californica,	Good
Peach,	Good
Privet, Box-leaved,	Good
Pyrus japonica,	Good
Quercus, variegated Turkey Oak,	Good
nigra or Purple Oak,	Good
Fern-leaf Oak,	Good
Weeping Oak,	Good
concordia, Yellow-leaf Oak,	Good
Salisburia, adiantifolia	Good
Sambucus argentea variegata,	Good
aurea variegata,	Good
Syringa, common,	Good
Emodi,	Good
Josikæa,	Good
Virginian Creeper,	Good
Veitch's	Good
Yews, English,	Generally brown'd

TREES.

Acer rubrum,	Good
colchicum rubrum,	Good
Liquidambar,	Good
Cypress, Weeping,	Badly Injured
Oak, scarlet American,	Good
Beech, purple,	Good
Oaks, purple,	Good
Elm, purple,	Good
Sycamore, purple,	Good
Maple, Norway,	Good
Tulip Trees,	Good
Virgilia lutea,	Good
Sycamore, variegated,	Good
Maple, variegated Ash-leaf,	Injured
Ash, variegated,	Good
Elm, variegated,	Good
Chestnut, variegated Spanish,	Injured
Gleditschias,	Injured
Birch, cut-leaved Weeping,	Good
Beech, curled-leaved,	Injured badly
Chestnut, Fern-leaved Spanish,	Injured badly
Dwarf,	Injured badly

In the Vegetable Gardens—Artichokes are apparently killed, Aspargus, Stawberries and Raspberries injured, though all were carefully protected during the winter.

Even since the above was written many things have gone back; no rain for over two weeks, and thermometer 82°—85°. Unless we shortly have rain we shall have nothing left—such hot drying winds.

WODENETHE, *May 15th*, 1872.

NOTES ON THE WINTER AT DANSVILLE, N. Y.

BY T. T. S.

The winter, with about one hundred and thirty or forty hard freezing days and nights, and no snow, was a test winter on many things. Trees and plants in moist soil have suffered less than on very dry soil. The last cold snowless winter I saw a fine proof of this. A neighbor had a quantity of Anger's Quince budded to Pear. They stood on a piece of good dry loam, a sort of yellow clay and sand, and very *dry* soil. On the same flat and near by, I had a block planted the same time, but on a more moist soil; the soil being a mixture of clay and vegetable mould, and while not *wet* yet a *moist* soil. The winter was long, dry and cold, and no snow, and no rain in the fall. Spring found full ninety per cent. of my neighbor's block dead—froze dry, and not a dead plant in my block.

I find this spring the tops of Yearling Apples some varieties killed back. I have not found a dead or hurt top in all my large blocks of Pear. Is the wood of the Pear more hardy than the Apple, or does the root of the Pear go deeper and find moisture to supply the top?

A word about Cherries. Last spring I planted 5000 "Black Morello Cherry" seedlings. I planted them because some of my western patrons wish Early Richmond grown on B. Morrello stocks, "no other stock being hardy enough for the west." I planted at the same time Mazzard and Mahaleb stock to amount of 30,000. The rows of Morello being between the rows of Mazzard, the Mahaleb being near by. At the proper time the Morrello were budded, the work being done by two men of fifteen years experience in budding, and my best men. Full eighty (80) per cent. failed to take, while only three (3) per cent. failed on the Mazzard or Mahaleb. Rebudding produced no better results. The plants made a good healthy growth. Imagine my surprise on finding this much vaunted "hardy" stock badly winter killed. At the time of spuring back this spring, I found full three-fourths (75 per cent.) dead, *root* and *branch*, the balance more or less hurt. In planting a bundle of Mazzard cherry became mixed through the rows. They were sound and alive to the top bud. The rows of Mazzard along each side went through the winter all right, the most sound to the top, and no dead stock. On the Mahaleb the new growth was all dead, and a small portion of the stock was dead throughout. The moral I draw is that the best and most hardy stock that a cherry can be grown on is *true* Mazzard, (I think the *Red* Mazzard the hardiest), next Mahaleb, and that the wonderfully "hardy Black Morrello" is about as hardy as a fig.

Speaking of cherry reminds me of a fight I had last summer with that miserable pest, the Cherry Plant Louse, (*Aphis Cerasi.*) I found one day early in June that here and there over a block of Yearling Cherry they had established colonies. As soon as I could prepare the old standard remedy, Tobacco and Soap, I had it applied. It used up the young fry, but the older and harder shelled ones did not seem to mind it much. The weather being very favorable, they increased faster than we could kill them, do the best we could. I then put a quantity of Carbolic Acid in with the soap and tobacco. I used the "Crystal" or refined, (the pure acid), but without the expected results. I then found at a drug store some "crude" Carbolic Acid, being a dark colored, rank smelling article. This I mixed at the rate of about four (4) ounces of acid to two or three quarts of soft-soap, and about ten or twelve gallons of water, put in a little rye flour to make the compound adhere to the leaves some, and then with a couple of coarse sponges throughly wet the leaves. It proved a harvest of death to the enemy. One application cleaned the block. Other nurserymen who used the usual remedies lost their trees; mine came through unhurt. This "crude" acid is very cheap,—only three or four cents per ounce at retail. Made too strong it will kill the leaf. One should try and note result before using much.

Apple trees are loaded with bloom. Pears over-bore last season, yet the trees are *well* filled with flowers again this season, and promise nearly a full crop. No Peaches. Cherries full crop. Very dry, pasture and meadows suffering.

RAMBLES IN QUEENSLAND, AUSTRALIA.

BY MR W. T. HARDING, NONANTUM HILL NURSERY, BRIGHTON, MASS.

If the editor of the *Monthly* and his numerous readers will accompany me to the Antipodes, (in imagination only,) I will return again to that wonderful island which the Dutch discoverer previously named New Holland, but is now better known as Australia. Its area is so vastly extensive, stretching about two thousand miles from north to south, and some two thousand five

hundred from east to west, that it is very properly termed a continent. In size it is more than two-thirds that of Europe. The Tropic of Capricorn runs through the centre, which places its northern coast within eleven degrees of the equator, which is near enough to old Sol for an Anglo-Saxon to swelter in.

Recent accounts from that country inform us that the solar heat for several successive days reached 108° in the shade—hot enough, you may suppose, to make the colonists feel *warm*-hearted. Your correspondent has a vivid recollection of the hot winds with which the country is so unpleasantly visited, and of one, more especially, which lacked but 97 of "the boiling point," 212°. The "red-hot wind," as it rushes in fiery gales like furnace-blasts through the land, has been graphically described by many a fervid pen. Still later accounts inform us of a fearful cyclone passing over a portion of the country, and leaving wreck and ruin to mark its course.

Australia is a peculiar country in many respects, and philosophically differs from all other lands in the characteristic features of both the animal and vegetable kingdom. It has numerous and beautiful-plumaged birds, whose strangely uncouth and discordant notes sound like a gross parody of such musical songsters as "the black-birds and thrushes, who sing in every green tree" in Europe, or "the sweet little oriole" or plaintive mocking-bird of this hemisphere. There are thousands and thousands of cockatoos, parrots and parroquets, yelling, screeching and screaming in the lofty tree-tops in a fearful manner.

The traveler is frequently startled with the note of the bell-bird, whose monotonous tone strikes the ear like "the sound of the church-going bell." The song (so called) of the Dacelo gigantea, or "laughing jackass," as the settlers call them, seems an odd counterpart to the funny chorus, as he bursts out into hearty peals of loud and jolly-like laughter, from beneath some adjacent bush. It is a large and powerful king-fisher, who lives in the dry scrub and forests, and preys upon the smaller mammals, insects and reptiles, instead of fish. It is an expert mouser, and, with the untiring patience of a cat, will wait at a hole for the "wee, sleekit, cow'rin, tim'rous beastie," which, to use the words of Burns, goes to prove that even there, as well as in "bonnie Scotland," "the best laid scheems o' mice an' men gang aft aglee."

The bower-bird and lyre-bird surpass all and every other ornithological beauty I ever saw. Another interesting bird is the emeu, a long-legged creature, not unlike an ostrich, and is generally called "the native companion." Its habits are sociable and friendly, and may be seen following the aborigines like their canine companions wherever they go. They seem to affiliate with the white settlers also in the same manner.

Black swans are numerous in several parts, Western Australia especially. Of ducks and geese there are several curious species. The shieldrake is the most beautiful of all water fowl. When in Queensland, some two hundred miles from Brisbane, where the Mary River winds its way through immense groves of wattle and blue gum trees, I was much amused with the adroit manner the blacks had of capturing water-fowl in the reedy lagoons, which seemed literally alive with them. One summer afternoon—January 25th, 1852, (in Australia the summer season comprises the time between December 22d and March 20th,)—while resting near the river, where we had passed most of the morning, I noticed some black *sportsmen* bagging their game in a somewhat novel way. Among the Nymphea gigantea, whose numerous and beautiful blue flowers, averaging from twelve to fifteen inches in diameter, sweetly reclining on these green, salver-shaped couches, like lovely "water nymphs," as they undoubtedly are, three or four blacks were quietly moving. Their heads were artfully concealed with tufts of rushes just above the water, that completely hid them from the unsuspecting ducks, and, when near enough to take hold of them from beneath, they generally succeeded in catching three or four each before they took the alarm and fled.

The gigantic rush-like Xyris altissima waved gracefully above X. bracteata, Blandfordia nobilis (noble indeed), B. intermedia, Isolepis nodosa, Schœnus melanostachys (a singular black-topped variety), Killyngia intermedia, Renealmia pulchella, Hœmodorum teretifolium, Mariscus lævis, Juncus planifolius (a very curious flat-stemmed rush), Crinum flaccidum, Callostemma alba, C. purpureum (two pretty Amaryllis-like plants), mingled with Dracæna nutans and Cordyline cannæfolia, almost hid the stream, so rank and dense were they.

On the higher grounds grew some fine Palms, Livistonia inermis, while beneath were mats of the singular green-flowered, tuberous-rooted orchid Microtis media and the Omalanthus

populifolia, a pretty Euphorbiaceous plant, from seven to eight feet high.

Among the many singular and beautiful Cryptogamic gems were tufts of Ophioglossum costatum, and in the wildest profusion grew masses of *the most beautiful* of all the Pteris tribe—Pteris scaberula, also Lomaria lancifolia and L. Patersonii, two handsome and attractive Ferns. Fine specimens of Melia australis, a tall and handsome tree, attaining to one hundred and eighty feet, were conspicuously towering above the many beautiful shrubs and flowers beneath. It much resembles the Melia azederach, a native of Syria, and is used in Georgia and South Carolina as a shade tree. Trychilia glandulosa, another ornamental tree, in every stage of growth, from a sapling up to one hundred and fifty feet high, were richly draped and festooned with the splendid blue-flowering Glycina clandestina, whose beautiful racemes hung, like glossy silk streamers, on all sides. I saw several specimens of Glycinas, of immense size, where the trees over which they had climbed had perished and decayed, and when in full bloom, looked like a blue mountain. On Kangaroo Island there is a very remarkable *mountain* of Glycinas, and can be discerned at a considerable distance.

Some of the richest soil for agricultural purposes to be found in Australia is along the banks of the Darling, Warrengo, Mackenzie and Mary Rivers, and is well adapted for the cultivation of tobacco, cotton, coffee and sugar. Here may be seen groves of plantains and bananas, in full bearing, with broad acres of pine-apples of good size and well flavored, with fields of arrow-root, ginger, sugar-cane and yams, besides groves of oranges and lemons, guavas, mangos, figs, peaches and tamarinds. In fact, all the subtropical fruits seem to flourish here. The grape-vine is remarkable for its luxuriant growth, and is everywhere cultivated where the white man settles. An excellent light wine is made from its fruit, and is justly becoming popular as a beverage throughout the country.

The greatest disadvantage the country labors under is a lack of water. Good drinking water is to be met with sometimes; but more frequently it has a brackish and unpleasant taste, and is decidedly *nasty*. The water-holes, where man and beast are often compelled to slake their thirst, are generally alive with animalculæ, disgusting reptiles, and every abominable kind of amphibious monsters imaginable. I have often shut my eyes while trying to swallow a little when almost frenzied with thirst. If it is boiled before using, it is all the better, as it can then be got down with more confidence. It is a common sight to see men going to their labor with tea-kettles slung over their shoulders, which are filled and emptied many times during the day. Boiled water, when flavored with tea and sugar, is certainly more palatable, and healthy, too, than the semi-fluid is when in a *raw* state.

As a people, the colonists are becoming the greatest tea and coffee-drinkers in the world. The lonely shepherds and stockmen, whom we frequently met "far in the wood from noise and smoke," are often men of education and refinement, "who have seen better days," and, failing to realize what they had been led to expect, have, as a dernier resource, been glad to accept such menial positions to eke out their existence. To them "Hope told a flattering tale." The pastoral life of "a gentle shepherd" is there shorn of all the poetry and romance with which it was surrounded in "the light of other days."

As we steered our course towards Brisbane through a beautifully diversified country, I observed numerous clumps of Banksias, Drandras, and Cycas angustata, a remarkable herbaceous palm-like plant, with quantities of Dampiera stricta, a very ornamental blue-flowering plant, named in honor of the celebrated navigator, Captain Dampier.

Eranthemum variabile, a pretty evergreen shrub, bearing purple flowers, and Dracophyllum secundum, a white-flowering variety, were exceedingly beautiful. Grevillea Baurei (red), G. concinna (purple) and G. sulphurea (yellow), with some thirty more varieties, were interesting and beautiful.

Hakea, of which there are numerous kinds, is a very singular and curious genus, and is found generally throughout New Holland. Here they grow into impenetrable thickets, woven together with Hibbertia volubilis, Hoya australis, Jasminum accuminatum (a rambling evergreen climber), Eustrephus latifolia, Cissus antarctica, Zichyas and such like climbers.

Gunnea picta, a curious little orchid, literally covered some large specimens of Melaleucas, or "Black and White Trees," as the settlers call them. Very old trees have an odd appearance, and seem as "old-fashioned" as anything ancient can well be. Although of no great height or bulk, their wierd-looking trunks seemed cœval with the third day of creation, and might have been hale green trees when Adam took charge

of the garden and made love to his beautiful Eve among fruit and flowers. They in reality looked like arboreal antidiluvians, who had continued from that age until now. Melaleuca linarifolia, M. grandis, M. pulchella and M. diosmæfolia are tolerably well known in this hemisphere, and are useful in forming choice bouquets. There are some fifty species, and are all indigenous to Australia.

Several fine specimens of tree ferns, Dicksonia antarctica, delighted us with their stately and magnificent forms. As we lingered beneath the shade of their beautiful fronds, I wondered how many thousands of years had passed and gone since the Creative power had quickened them with vegetable life ere our first parents were.

In a work written by Mr. B. A. Williams, F. R.H.S., London, on "Select Ferns and Lycopods," appears an excellent wood engraving of a group of Australian tree ferns, and the centre one is a fair specimen of many I have had the good fortune to see and admire. I could not resist the temptation to climb up the trunks of some of the tallest and most handsome grown ones, being careful not to injure the young fronds rising from the centre of the crowns of these cryptogamic kings, who reigned over the Ferny Kingdom before the carboniferous era, and were then, as now, "pleasant to the sight" "in the days when the earth was young."

In the deep black alluvial soil on each side of the Darling, to the Culgoa and Condamine Rivers, grow numbers of Pandanus pedunculatus and P. spiralis, some of which are beautifully grand, and which average from twenty-five to thirty feet high.

The valleys seemed well adapted for pastoral pursuits, and were well covered with grass. The trees, shrubs and herbaceous plants seemed peculiar to the region we were passing through. Of terrestrial Orchidea I saw acres of Glossoides minor, a pretty blue-flowering kind, of peculiar form, with Dipodium punctatum, a curious leafless kind, bearing purple flowers, besides Caladenia cerulea and C. alba, two lovely blue and white kinds.

Lyperanthus suaveolens (very odoriferous) and L. ellipticus (the latter is a most singular orchid, the club-like tubers of which are natural curiosities) ought to be grown in every collection.

Gastrolobium retusum, a pretty leguminous shrub, and remarkable for its inflated seed-pods (like fishes' bladders), with which it is covered; Hibiscus multifides, a handsome blue-flowering shrub, and Hypocalymna robustum, a pretty graceful shrub, with a myrtle-like habit and foliage and peach-like blossom, were charming indeed. I saw it for the first time at the Botanic Gardens at Sydney, New South Wales, and subsequently at Flinder's Island.

Tristania arborescens is a rather robust-growing tree, and may be classed among the curious. It was occasionally seen. At the famous Norfolk Island, growing among the magnificent Pines, was Araucaria excelsa; it is numerous, and contrasts well with the noble and beautiful trees which flourish there.

As I have led you thus far, we shall soon reach the coast, and as we are passing through a picturesque country, we will admire its beauty as we journey on through a part more intersected by numerous streams than any previously met with. Innumerable flocks of sheep, herds and horses are fattening upon the well-grassed plains. Considerably of the country is heavily timbered, with now and then an open glade, from which an isolated hill abruptly rises, which gives a pleasant undulation to the landscape, which lacks not a feature to make it exceedingly romantic. Groups of Isopogon formosa, an evergreen shrub, profusely covered with pretty rose-colored flowers, becomes numerous, and is, perhaps, as interesting as most of the Australian flora, so beautiful on every side. Isolated clumps of Epacridaceous shrubs were as beautiful and fair as they always are.

Melichrus rotatus deserves mentioning, so lovely, I thought then, and do so now, as to be hardly excelled by any of its pretty congeners, as it seemed to sparkle with myriads of fiery-red flowers, and which seemed to flash in the moonlight with a dazzling glare.

Some fine Podocarpus asplenifolius, much like a Taxus, were here and there growing, and reminded me of some of the famous specimens of the ancient "churchyard Yews," whose branches overshadow the weary travelers, whose slumbers have been unbroken for centuries, in the quiet country churchyards of Old England.

But a little further, and I will conduct you from an Eden of flowers to a Paradise of fruits in the orchards and gardens in the suburbs of Brisbane, the capital of Queensland. Smack your lips, then, good readers, and fancy you are guests of Pomona, enjoying her luscious offerings, while listening to the sound of "the sad sea waves" as they roll in from Moreton Bay.

And now, Mr. Editor, I must leave you for

the present, and if you and your readers are not tired of me and the journey, I will gladly meet you at some future time, when I trust we may all journey on pleasantly together again.

THE MEMORABLE WINTER.

BY MR. JOSIAH HOOPES, WEST CHESTER, PA.

In taking a retrospect of the effects produced by the late disastrous winter, there are several new features to be taken into our calculations. Some planters are foolish enough to reason in this style: "That we can now ascertain what are really hardy, and which too tender for reliability." Such is not the case.

The long continued cold weather during an *exceedingly dry term*, is what did the mischief, and therefore species that have heretofore stood with perfect impunity, may still be reckoned among our really hardy plants, although killed outright at present. Supposing for instance the above hypothesis to be correct; why then should American Arborvitæ, Hemlock Spruce, Silver Fir, and Common Junipers be killed, whilst close alongside of the above we find Abies Smithiana, (morinda), Chinese Arborvitæ and other partially tender plants *entirely uninjured* this spring? This has been my experience, curious as it may appear. Again in a collection of Conifers stand specimens of Abies Pindrow and A. Webbiana, that have every winter for many years been injured, either in the terminal bud or leading shoot, and are now entirely healthy and vigorous in leaf and bud. Yet close beside them *hardy* evergreens are now candidates for a first-class bonfire.

Many species of the Conifers are enabled to withstand excessive drouth much better than others. The *Taxus* genus have suffered fearfully here, with one exception, and that the *T. cuspidata*, one of the newer introductions from Japan, is not even browned,—a perfect little green gem, amongst a mass of brown and dead companions. Is this hardier than the others? I think not, for our native species, the Canadian Yew, found very far north, has failed entirely. The *T. adpressa* an undeniably hardy species has also terribly suffered. Another curious fact is, that some kinds are even yet "going back." But one week since, May 1st, a large *Cryptomeria Japonica*, (some twenty years planted), was apparently alive to the very tips, but to-day it is as brown as an old brush heap; and even as I write, a large *Abies Pinsapo* that I had thought all right, has suddenly turned yellow all over. Some curious freaks have occurred in extensive plantations of hardy trees. For instance in seemingly protected situations, we lose severely, and in others more exposed, we have lost but few specimens. Again in large blocks will be found one or two plants alive and beautiful, whilst the remainder are totally dead. In long rows of the *Hemlock Spruce*, individual plants on dry hillsides are alive, but in the low and moister places they are dead root and branch. This is difficult to explain. In a recent letter from A. D. Brown, Esq., present owner of the celebrated "Field Collection," at Princeton, N. J., he thus reports some interesting facts: "*Pinus australis* very slightly touched," and yet a form of the Scotch Pine is "killed completely." "*Juniperus* all more or less browned except *rigida;* this although not sheltered is entirely untouched." "Golden Arborvitæ (*Biota onintalis aurea*), *flagelliformis*, &c., uninjured; B. Tartarica, every one (some 20 or more) killed, exposed or sheltered, it was all the same." The foregoing although giving no facts as to the real availability of our evergreens, is still of use in showing how different plants are enabled to withstand extremes of moisture and drouth. I could give you a detailed list of Conifers with their record during the past winter, but I believe such a statement would be of no use. Our collection appears as if a fire had swept over it, and indeed it will after the lifeless remains are dug up and placed on a heap. Such in brief is my lamentation over my favorites, and I sincerely trust I may never again have cause to make such a disheartening report.

LAFAYETTE & CO. IN NEW YORK AND IN PHILADELPHIA.

BY DANIEL PHOOLE.

About the middle of February last the attention of the writer was attracted by a number of fine looking bulbs, &c., displayed in the basement window of 745 Broadway, New York. On going in I found the party in charge all French —roots, bulbs, tubers, &c. they had in profusion, and of a kind and character entirely new to my horticultural and floral experience. On inquiring the kind of flower they bore they displayed several engravings of the most gorgeous character; in fact the walls of the cellar were literally papered with them.

Now it is somewhat unfortunately the case with your correspondent that a new bulb, plant, or flower is a sight as fascinating to him as the

glimpse of a big nugget would be to the eyes of a California gold-hunter. The consequence was I went in and bought and "was sold" at the same time. I purchased 1 Arc de Triomphe, 1 Incomparabilis Reine des Fleurs, 1 Calypso Borealis, and I am sorry to add that although an old subscriber to the *Gardener's Monthly*, I actually bought, (this is confidential, sub rosa you know. Tell it not in Gath. Whisper it not in the streets of Askalon),—I invested in a *Blue Rose*. However, the blue rose is dead, having departed this life about the time I recieved it, and in truth had I not the utmost confidence in the honor and integrity of Lafayette & Co., I would believe my Blue Rose had left for another and a better world, *just a little before* it left the hands of that enterprising firm in New York. Requiescat in pace,—peace to its ashes. I have no doubt my rose is now shedding its fragrance and displaying its mazurine blue petals tipped with gold in that spirit-land where all good roses go, especially if their color happens to be blue.

The other plants I have grown carefully in pots for three months; none of them have as yet flowered, though doing well otherwise. I would very much like to know their botanical names and orders, as I find nothing in Gray or Wood or Lindley, either, that exactly tallies with them as far as developed. I will therefore describe them to you in the very best botanical lingo I can muster:

Arc de Triomphe.—This is a large fleshy root about 12 inches in length, and the thickness of my wrist, branching out palmately at the top into six forks, about the length and thickness of a finger, each fork having an imbricated leaf-bud, which have expanded into as many herbaceous stems which are now variously from one to eight inches high; leaves three to four inches long by one and a-half, entire simple ovoid acuminate decussate rugose strongly three to eight nerved with winged partly clasping petioles; structure exogenous; the root has the bitterness of gentian, and may possibly be a variety of Columbo, of the gentian order.

Incomparabilis Reine des Fleurs.—This root is a fascicle of twelve or fifteen tubers, from three to five inches long, springing from a common axis, and not unlike the young tubers of the Sweet potato. On top was a large leaf-bud on a short axis, surrounded with a tuft of coarse fibres This bud has expanded into twelve or fifteen lance linear sub-erect keeled or three-angled leaves, ten to fourteen inches long. Acaulescent structure endogenous.

Calypso Borealis.—This also was a bundle of tubers (10 or 15), two inches long, the thickness of a quill, with a stout leaf bud surrounded with a tuft of fibres. Canlescent; stem eight inches high; leaves four inches long, one and a-half wide, sessile, long, oval, rugose, almost plicate, sub-acuminate, alternate, amplexicaul; endogenous structure.

On Tuesday, May 7th, I attended a closing out sale of French plants, at Birch's Auction rooms on Chestnut street. Among great quantities of roses, fruit trees, &c., were literally cart-loads of Arc de Triomphes, Reine des Fleurs and Calypsos, and though no blue roses were offered, and no prints displayed, I did not doubt that Lafayette & Co., of New York, were transfering their novelties to Philadelphia. Here plants were sold at figures ruinously low—three to five and ten cents, prices that certainly never paid the cost of importation—if imported they were, and they could not be grown here at those figures with attendant expenses.

I here from curiosity, invested a couple of shillings in some novelties that interested me at the moment, though believing at the same time I was buying from Lafayette & Co., and should they result in nothing, there will be neither loss nor disappointment:

Alstromeria Regia.—This is a fleshy root about the size and shape of an ordinary horse radish-root, with the color and texture of flesh of the Sweet potato. From the top is growing a few small dark green ovate cordate leaves on long red petioles and stem.

Pelpedium Elephantissimum.—This is a dark fleshy root, having somewhat the appearance of a large horse radish, crowned on top with a tuft of thick coarse fibres, the dead vegetation of last year. No growth as yet.

Genet Broom.—This is a grafted plant, the stock resembling a willow twig, the thickness of a finger, three feet long; the scion on top branching out into a number of slender twigs, gives the plant the appearance or rather shape of a common house broom. This is just beginning to bud.

The following day, May 8th, accidently in the neighborhood of Lonabaugh & Pabst's Auction rooms, Fifth and Chestnut, I witnessed another plant sale, though I bought nothing. Here the hand or hands of Lafayette & Co. were unmistakably displayed. The bidding hung fire at first till a gentleman with a Jewish cast displayed a

large colored engraving of the Arc de Triomphe in full bloom, with umbels of elegant flowers springing from each axil. This had the same effect on the crowd that the tauridor's red flag would have at a bull fight, or the Irish sunburst on the warriors of Brian Boru. The crowd became intensely eager and excited; bids poured in thick and fast. One lady, "fair, fat and forty," brandishing a parasol at the auctioneer with the prespiration streaming down her face, bid over everbody,—over herself very often, she certainly must have bought the full of a cart. Plants that the day before at Birch's brought with difficulty five, eight and ten cents, here brought two and three dollars. Next came a lot of flowering ferns, the engraving representing an ordinary polypod, with lilies growing all over the fronds. Next came a bundle of dry looking thorny sticks, announced as the Arallia Grandiflora. There was no bidding for a few moments till our Jewish friend threw out another red flag, in the shape of a taudry colored print, representing an Aralia with a *larye red tulip* at each axil or node. The bidding on this was most spirited, the lot being knocked down at four dollars a piece, yet the same plants were knocked down at Birch's the day before at eight and ten cents. I believe the plant to be nothing but the common Aralia Spinosa of our thickets.

I saw no more; I left the Auction room a wiser and a sadder man,—wiser because I had learned a new fact in botany, that the Aralias do not always bear umbels, they sometimes bear red tulips,—for evidence of that see Lafayette & Co. prints. A sadder man because it pains me to see *people so easily duped*, throwing away their valuable greenbacks as if they cost nothing. It also pains me to see descendants of the honored race of Isaac and Abraham, Moses and Aaron, decoying their fellow-man as ruthlessly as the descendants of other races,—stooping to so much baseness for filthy lucre.

STATELY ROW OF PEAR TREES.

BY L. B., PHILADELPHIA.

For some years past I have observed in the distance out Wharton street west of Broad, a stately row of Pear trees hanging like a low cloud on the horizon, and have often intended to visit them for the purpose of seeing why they grew so well and so long, while modern plantings all perish so soon. I never heard their history ever outlined, and thought it possible that they represented the shadow of Mr. Landreth's former power, as they were near the spot where his authority was supreme for many years. During 1871 the western extension of Wharton street and the opening of Eighteenth street, brought the group into peril of their lives, and a few days since I visited them, and finding the street filling in around them, I got all the facts possible as to their history, and took their ante-mortem statement on the question of grass.

There were thirteen trees in all planted about twenty-five feet apart, in a right line north and south; all but one being in perfect health and vigor, and in splendid bloom at the time I saw them. In height they were not less than thirty-five feet, with shapely crowns at least thirty feet in diameter across the row; lengthwise of the row they touched, but were less expanded for want of room. I measured the trunks carefully with a measuring tape; they were very uniform in size from the ground to the spread of the branches, which was about seven feet, and they varied in circumference from a little less than seven to fully nine feet, being from two and a half to three feet in diameter. All the trunks were sound, and all showed a swell where grafted about a foot from the ground. Most of them were Catherine pears, but the Bergamot, Butter, and quite a number of other varieties had at different times been grafted on the upper branches. If the exact measurements are worth citing, I offer them here, as carefully recorded at the time, the circumference only being given:

	At 3 ft. from the ground.	At 6 ft. from the ground.
No. 1,	7 feet 10 inches.	7 feet 11 inches.
" 2,	7 " 3½ "	7 " 0 "
" 3,	6 " 10 "	7 " 0 "
" 4,	8 " 5½ "	8 " 6 "
" 5,	(buried)	8 " 0 "
" 6,	7 " 4 "	7 " 0 "
" 7,	6 " 9 "	6 " 7 "
" 8,	6 " 11 "	6 " 11 "
" 9,	7 " 1 "	7 " 0 "
" 10,	7 " 1½ "	7 " 0 "
" 11,	8 " 6 "	9 " 0 "

One is now cut down and another buried below the crown, so that it cannot be measured.

As for the history of these trees, I was fortunate in finding Joseph Rementer living near the spot, who informed me that they were planted by Peter Rementer, his grandfather, and as he thinks, not less than a hundred years ago. They were large trees when his father was young, and he when a boy, had always assisted in gathering

the large quantities of pears which they annually bore. The trees were at first trained low, yet they were so large that the crop was allowed to fall as it ripened. They were picked up in barrels and sold, bringing twenty-five cents a half peck fifty years ago. The farm or lot was a small one, of four or five acres only, fronting on "Irish Track Lane," and was an original purchase by Peter Rementer.

As to the care of the ground, Mr. Joseph Rementer says that the spot around the trees was always in grass; never ploughed or cultivated. Other fine fruit trees grew near them, but none now remain except these pears. The fruit fell in the grass, and for the full half century of my informant's personal knowledge, the condition of these trees has been the same. He is over sixty years of age, and lives in a house much more than one hundred years old, he is therefore, good authority on this point. The trees have also always been healthy and prolific; so prolific that in some seasons quantities of pear seeds were gathered and sold.

If the builders do not destroy them there will be a fine crop of pears this summer. The trees are so large that the boys are baffled in the matter of destroying either fruit or branches. By what chance are these noble trunks preserved if the art of pear growing is lost? The soil is not peculiar, it is the general level of the plain, tenacious clay and loam, ten or twelve feet thick, with fifteen feet of clean sand and gravel below, as is all the surface of this southwestern part of the city. Nor could grass have done them harm, though present to the personal knowledge of my informant for fifty years, and believed by him to have been always around them. The street grade being some six feet above the original surface at this point, the filling in of Eighteenth and Wharton streets may possibly kill them before the summer ends, yet only one has so far been hurt by the water or the soil. These are grafted trees, be it observed, on seedling stocks, and therefore not unlike all the pear tree planting of the present time, as to the chances for long and healthy life.

I regret that a more definite history of their early years cannot be got, but my informant thinks no one can know more than himself, and no personal memory can go farther back. Mr. Peter Rementer, who planted them, was one of the earliest of German emigrants to this city, and being a lover of fruit, at once planted out pears, plums, &c., freely. Could the situation and surface remain the same, these trees would now, so far as one can see, be good for another full century of sound growth and prolific bearing.

May 20th, 1872.

NOTES FROM WESTERN PENNSYLVANIA.

BY MR. A. HUIDEKOPER, MEADVILLE, PA.

Blue Grape Bud Beetle.—I inclose you some specimens of the small green Beetle which is so destructive to the buds of the grape-vine, perforating them before they expand. I found them in the garden of a friend, who supposes he imported them with some native vines which he purchased. They can be easily found and picked from the vines by those who will take the trouble to do so. When touched they leap a few inches and drop to the ground. I suppose this to be the same beetle which troubles cultivators of the vine along the lake shore, west of us.

[This is the common steel blue grape bud Beetle of the east,—a native "to the manor born" if not to the *manner*, (as some Shakesperians read it) as well.]

Winter.—The dry cold winter has operated singularly here. A few Balsam Firs (a tree indigenous here) are turning brown, and will no doubt die; on the other hand, shrubs not quite hardy generally, such as the Japan Quince and Forsythia Viridissima, are full of flowers to the extreme ends of the branches, a thing I have never known occur here before where the plants were left unprotected.

Fruit Prospects.—Fruit trees have blossomed well, and we have a great excess of Apples and Pears beyond what can properly mature, and also a fair crop of Peaches. Some of the early Grape shoots got frost bitten, but where the vines were shielded from the morning sun, the prospect is a good one. Although it is the latter part of May, we do not feel quite sure yet of exemption from further frosts. If we do escape, the season will be an uncommonly productive one.

[We have a similar experience here.]

Pear Blight.—Accepting the modern explanation of this disease, viz.: that it is caused by a fungus penetrating the bark and destroying the circulation; it seems to me the basis of hope for a case must be in an alkali applied so that it shall reach the cause of the trouble. I am making an experiment to determine the matter and will report the success or failure which may finally result from the treatment. The case in hand is a

very decided and far advanced one, and anything that shall cure it, I think can be relied on under ordinary circumstances.

[Mr. Saunders believes he has a complete preventative by a wash of sulphur and lime.]

The Hay Crop.—The late rains we have had bid fair to give us a full crop of hay, and have helped the strawberries. The fruit of the latter will be late in maturing this year, ripening somewheres from the 10th to the 15th of June.

[The rain did not reach us eastern folks time enough to give us a good hay crop.]

WINTER GARDENING.

BY DR. J. WEED, MUSCATINE, IOWA.

The demand for winter grown vegetables, fruits and flowers has already become very great in our large cities, and undoubtedly it is destined to increase immensely throughout our vast country with the progress of civilization and the increase of wealth. Any question of economy in their production, is of great importance to producers, and also to the public, who often pay dearly for these luxuries,—supporting an immense trade.

The rapid extension of railways towards tropical countries is a feature of this age, calculated to cause northern cultivators to look to the future, and they may well consider whether naked glass and Pennsylvania coal can successfully compete with the more genial climes of the south with these facilities of transportation.

Formerly most forcing houses were lean-to structures, which were considered incomplete without board shutters, but the labor and difficulties involved in their use, with an increasing taste for the more artistic span-roofed houses, have caused these clumsy appurtenances to be laid aside, for which the modern steam engine, or its equivalent, a hot-water apparatus, has been substituted. In "Gardening for Profit," Mr. Henderson estimates the cost of one hundred lineal feet of his most economical glass structures, heated by a first-class hot-water apparatus, at $1000, and the same heated with flues at about one-half the cost, without giving the reader one word in regard to the comparative advantages or disadvantages of the two methods of heating.

A correspondent of the *Prairie Farmer*, describing a visit to Mr. Henderson's place in the autumn of 1870, says: "he had just built a new house, heated complete with two of Hitchings' most powerful boilers, so arranged, however, that one is only in use, in case of extreme cold, or in the case of breakage to the other." This duplicate boiler to stand idle, except when the other might happen to get out of order, must add materially to the first cost; besides, the fact of its employment by this veteran cultivator, suggests that with exposed glass, great values are sometimes in jeopardy in emergencies. He says Mr. Henderson uses 150 tons of coal, which at $6.00 per ton, is equivalent to the interest on $15,000 at 6 per cent. These items of expenditure indicate the magnitude of the flower trade in New York, which no doubt, could be still increased if the cost of production could be reduced.

Luchars estimates the loss of heat by "laps and fissures in badly glazed structures" at one-fourth, and at least one-fourth more by radiation from uncovered glass. This estimate is for a still external atmosphere, the loss being greatly increased by high winds. He calculates that each square foot of glass, by these combined effects, will reduce the temperature of one and one-fourth cubic feet of air as many degrees per minute as the internal temperature exceeds that of the external. That there is great loss of heat in the use of uncovered glass is evident to the most casual observation, and proved by the large expenditures justified in the costly apparatus used to afford the amount required in very cold weather.

Our ideal of economy in a plant structure allows for each square foot of plant border one square foot of glass, and no more; and this is only depended upon to protect the plants during the time when it is indispensable for the admission of light, which in this latitude in the short days in winter, is only during eight hours of the twenty-four; the opaque structure being relied upon to protect the plants against cold sixteen hours every day, and in very cold and cloudy days; and it should be nearly, if not absolutely, proof against night ventilation and radiation.

We have instituted some experiments hitherto, which induce us to believe that more can be accomplished in this direction than well informed practicals would be likely to accept on the authority of paper statements.

EDITORIAL NOTES.

DOMESTIC.

California Fruit.—The Orange, Lemon, Fig, and other sub-tropical fruits seem a great suc-

cess in southern California. The newspapers of that region talk of bearing trees by the hundreds of thousands.

Chinese Quince.—This is the *Cydonia sinensis.* A correspondent of *Southern Farmer* says:

"Although this fruit has been cultivated in this country for a number of years, it is still very little known outside a few localities. It grows to an enormous size when cultivated in suitable soil. The largest specimens we have ever noticed came from Columbus, Ga., where the soil seems to be best adapted to this variety.

Fruit very large, oval, oblong, broadest in middle and tapering at both ends. Skin, lemon yellow, smooth; flesh, coarse grained and woody; of inferior quality when compared with either the Apple or Angers quince. The fruit keeps remarkably well through the winter, and emits a peculiarly pleasant fragrance. It is not unusual to find specimens weighing upwards of three popnds.

Tree a compact, ready grower; flowers, large deep pink; foliage, broad and glossy. The main objection is that the flowers open very early and are liable to be killed by spring frosts.

A remarkably showy fruit, and although an uncertain bearer, is worthy of a place in an amateur's collection."

Near Philadelphia the trees do not seem to flower freely, or to bear fruit. We have seen trees fifteen years old without blossoming, but the leaves turn to as bright a crimson in fall as the Tupelo or Sour Gum. The flowers are pale pink, half the size of an apple blossom.

The Rocky Mountain Range.—Nothing is more remarkable than the rapid manner in which the beautiful spots of the American Continent are seized on and made to render tribute to human pleasures and human wants. The charming scenery of Pike's Peak, of which our space compelled us to give but a brief sketch in "Traveling Recollections" last year, seems fast becoming an intimate part of the white man. The following extract, of a recent letter to a Philadelphia paper, brings vividly to mind a couple of days of pleasure about there. Yet who would believe that so much of civilized life could be said about a tract of country in which much of the road is but the trails of Utes, Cheyennes and Arrapahoes.

About a year ago the purchaser of the tract raised a board up near these springs, warning travelers not to "cut brush"—scrub oak and alders being about the only thing here worthy of the name. As the board was being fastened, it was read by a passing rancheman, who exclaimed, "that may be all right, General, but don't be crowding civilization on us too rapidly." We thought at that time he need not be in any fear; but now this pretty spot, only at that time for the first hearing the carpenter's hammer, is already the "Saratoga of the West." But the extract:

"Now for the society. When arranging to spend a month or so here I confess I expected to spend it in comparative solitude—a few scattering visitors, perhaps, but nothing of the rush and bustle and choice of society or association which Long Branch or Cape May or Saratoga offers. I found a house full of guest, and rooms almost at a premium. Last year, I am informed, over 1,200 visitors enjoyed the water, camping out in tents over the beautiful *mesas* or table lands, which are the outlying charms of the springs. This it is perfectly easy to do, as there is no dew, and in summer the cool, cloudless nights, almost of themselves, are enough to tempt one out of house and bed. This year the visitors will be counted by thousands, and find good hotel accommodations.

But what is it that we all have come out to see? The summer-bound Philadelphian, under the sultry suns of July and August leaving his sweltering place of business to reach his sweltering place of residence, drops *en route* exhausted and prostrated into some friendly drug store, and for a glass of medicated soda water fizzing from a patent case pays five cents, unless he takes it with syrups or tinctures, and then he pays ten. Here bubbling up out of the ground, the escaping carbonic acid foaming and breaking like champagne, we drink the natural soda waters, pure, fresh, and strong, and without price. More than this, there are a number of springs within a small diameter, and in them you have a choice of prescription. These are all soda or Seltzer waters. Go about a half a mile up a charming canon and you find a strongly impregnated fountain of iron. I may say that both the iron and soda waters are stronger to my taste than those of the leading Eastern springs, although, this, of course, is not a scientific test."

A Neglected Fruit Orchard.—Whenever we have recommended orchards in grass, with top-dressings to maintain fertility, as being a better system than the clean surface culture, we have been met by some of our cotemporaries, and especially by the *Country Gentleman*, with the in-

sinuation that we were friendly to "neglected culture." Indeed it has rarely been the case that any reference to the system recommended by the *Gardener's Monthly*, has not been followed by holding up the awful results of "neglecting" the fruit orchard. The *Monthly* has persistently repudiated "neglected" culture; but yet, chiefly through the influence of the *Country Gentleman*, an idea is widely prevalent that the recommendation of our magazine is synonomous with neglect. The writer of this recently took Mr. Ellwanger to an orchard of a thousand trees in grass, on the plan we recommended, and he at once remarked: "why this is not as the public understand it." And now comes the *Country Gentleman* itself, and gives an account of an editorial visit to the orchard of Joshua Jefferis, in Chester County, Pa., and says:

"He has now two distinct portions of his orchard, a part without cultivation, but regularly and highly manured on the surface; and another part with the same varieties, which was cultivated for eight years. The former are the larger, thriftier and more productive of the two. The degree of fertility given by the top-dressing may be understood when it is stated that although covered with grass, the soil is so loose that it may be kicked up with the boot."

We regard this as a fair offset to that wonderful story, not so many months ago, in which one Pear tree in the middle of a bed, grew like the gourd over Jonah, while a poor thing "in grass" of course, stood still. All we ask of the fair-minded reader is to compare that story with this, and then choose his system for himself. For our own part, we have said much more on this orchard question than we should have done, if we had not felt that we were persistently misunderstood. We are well aware that this has not been intentional on the part of the *Country Gentleman*, which is one of the fairest of papers, or other of our worthy contemporaries; but it has been no less an injury to the best interests of fruit culture, as we understood them; and we have thus labored on, without any personal motive, but confident that time would prove the soundness of the position we assumed.

Personal Items.—Mr. John Ellis, the well-known grape-grower of New York, is now at Davisville, California, engaged in silk culture.

Thomas Appleby, formerly of Pine Apple Place, London, and son of the well-known nurseryman there, is in the opium business at San Jose, California.

Mr. Lukens Pierce, of Coatesville, Pa., and one of Pennsylvania's enterprizing nurserymen, died recently of pneumonia.

Mr. David D. Buchanan, of the Elizabethtown nursery, and son-in-law of the late W. Reid, died in the early part of June. He leaves a widow and two children.

FOREIGN.

The Strawberry in Europe.—It has been supposed that no one in Europe but the wealthiest are able to buy strawberries,—that in America alone is it the poor man's fruit. But the following from an English paper shows that the trade is looking up. $50,000 for one town, and at the English value of money, is pretty good business:

"Aberdeen has been long and justly famed for producing strawberries of the finest quality, and the last season appears to have been one of the most successful on record for the market gardeners there. Besides the large quantities of strawberries which were used by private families in the town and district, and the still greater quantities which were manufactured in the local preserving establishments, the exports of this fruit alone last summer amounted to about forty tons, and realized something like £1,200. The value of the entire crop of strawberries at Aberdeen this year has been estimated at £2,000."

Canada Horticulture.—*The Canada Farmer*, one or two copies a year of which find a way to our exchange table, says:

"As evidence of this it is only necessary to call to mind the magnificent displays of fruit that have now for several years formed so conspicuous and attractive a feature in our provincial exhibitions, and which have elicited the admiration of all beholders. If such a collection of fruit could be shown in England, as a fair representative of the capabilities of our soil and climate, it would do more to make the country known and to attract hither a desirable class of immigrants than all the placards, pamphlets, or other agencies that have hitherto been tried. The change is also shown by the fact that whereas we used to be dependent upon our neighbors across the lines for our supply of nearly all kinds of fruit, we now not only raise sufficient of the hardier sorts to meet the demands of home consumption, but we annually ship large quantities of Apples for the English market. The culture of the Grape has also been prosecuted with most encouraging success, and is spreading rapidly. Still further proof of our progress in the same direction is fur-

nished by the growth of the nursery business in this country. There is not a nurseryman in the Dominion, though their number and the extent of their transactions have greatly increased, who is not taxed to the very utmost to supply the demand for ornamental, shade, and fruit trees; and the results are visible in the neat aspect of city garden plots, the charming grounds of suburban residences, and the improved appearance of farm homesteads."

EDITORIAL.

THE RYE GRASS.

We find in our country much confusion exists in regard to the Rye Grass. There are two forms used in agriculture and horticulture,—one *Lolium perenne*, the common or perennial Rye grass, the other *Lolium multiflorum*, the Italian Rye Grass. In England very great attention is given to distinguishing the two kinds; but with us there is a prevailing impression that there is no great difference, and if we order one kind it is very likely that the seedsman will send whichever he may have on hand to the order, supposing that as long as it is Rye Grass it is all right with his customer.

Books and dried specimens point out the differences, but we thought we could serve our readers by giving some account of them from fresh specimens. By the kindness of Messrs. Landreth & Son, of Philadelphia, we obtained a package of the true Italian, and sowed a few rows in the garden side by side with the common Rye Grass, which is abundantly naturalized in our vicinity. The seeds were sown in April, 1871. They grew very much alike except that the Italian has rather narrower and paler leaves. Now, June, 1872, they are both in flower at the same time. The differences now are very striking. Every one familiar with but the elements of botany, knows that on a branch a bud is generally situated on the stem at the base of the leaf, called the axillary bud. In most trees the leaf dies, and the bud pushes into a new branch next year. But when a plant flowers the axillary bud pushes the same year, in which case the leaf at the base seldom becomes a perfect leaf. It is usually called a bract; but in grasses it is termed the glume. In these grasses we see a great difference in the length of this glume, or abortive leaf. In the common Rye Grass it is as long as the spike of flowers into which the axillary bud has developed, but in the Italian it is not more than one-third the length. Then there are nearly one-third more flowers in each spike of the Italian, and these flowers have long arons as in our common bearded wheat. The spike of flowers is linear, or almost parallel in outline in the Italian,—ovate in the common species, and these spikes are set much closer together on the common or main stem. The stems in the common form droop over with a curve at flowering time, while the Italian is stiff and nearly as erect as a spike of wheat.

But there is one difference which is very striking, but not generally known, though pointed out so long ago as 1845, by Mr. Woods in the *Phytologist*. If we cut across a young shoot early in the season, before the flower has pushed out, we find that the young undeveloped leaves of the common Rye Grass have the two edges of the youngest leaves folded so as to be both within the two edges of the older and larger ones, just as two letter u's lying opposite to one another, the two legs of the larger U would clasp the legs of the smaller u But in the Italian species the young leaves one edge of each is outside of the other leaf, just as if, carrying out our illustration, one leg of a *u* had caught in one leg of the other *u*, giving a section a curved or S like appearance. This character will please those of our readers fond of examining plants with a lens.

In regard to the value of the two kinds, the heaviest crops seem to be derived in England from the Italian. It is the favorite grass for sewage treatment It does not seem to be durable, and is continually being sown as Red clover is. The common is used for more permanent pastures. Yet it is possible that climate may have something to do with these questions. So far as we can judge from our own limited comparison of plants, there is little advantage in weight of herbage in one over the other; and the plants of the Italian appear as permanently disposed as the others.

ABOUT CAULIFLOWER.

People often say about gardening that it is expensive. It is admitted to be a pleasure, but supposed to be a dear one. There are, to be sure, some phases of the art which bring heavy demands on one's purse, but it is by no means so in all.

There is, perhaps, nothing which costs so little and yet yields so much as a good Cauliflower frame,—of all vegetables there is nothing which to most tastes is so delicately agreeable. It is tolerably hardy; indeed so far as mere temperature is concerned, there is no temperature it will not stand. But it will not endure dry frost. Hence to have Cauliflower in our climate a frame and glass is necessary to mantain the sub-humid atmosphere necessary to insure against the winter loss. And this is all,—a good substantial glass frame, nothing more.

In most private places where vegetables are raised as a first rate luxury, a pit of stone or brick is provided. It may perhaps be six feet or more deep, and extend several feet above the level of the surrounding ground. Into this pit at the fall of the year, the dry leaves from the woods and the litter from the lawns and grounds is put, and on the whole some six inches of earth. On this the Cauliflower plants are set out in October. The heat from the decaying leaves keeps the plants growing through the winter, and thus beautiful Cauliflower can be had in March. But many suppose this nest of leaves is essential; that Cauliflower cannot be had without this slight bottom heat. But this is not so. The leaves simply give earliness. Good Cauliflower can be had without the leaves; only not so early by several weeks.

There is another excellent feature about a Cauliflower pit or frame. Asparagus can be grown with it, without any injury to the Cauliflower crop. The Cauliflower plants can be set about twenty inches apart, and as very little warmth is required to get Asparagus to grow, they are up, and cut for kitchen use before the Cauliflower have grown together close enough to crowd. A combined Asparagus and Cauliflower frame is an excellent thing to have. It costs little, is easily managed, and is productive of excellent results. As to the management it is very simple. The Asparagus roots may be planted six inches beneath the surface. But this surface soil must be very rich in order for the Cauliflower to do well.

Many make their frames too flat. The glass should slope so as to catch the early morning sun. Again the plants are often set too far away from the glass. When the light is thus impaired the head is likely to "bottom," as the gardeners call it,—that is to say come prematurely, and but an inch or two in diameter, instead of in the proper season, and a foot or more across. Too much confinement when growing also produces the same result. Air should be given whenever it is not freezing; at that time of course the sashes should be kept closed down.

In this way or others similar, any one may have this delicious vegetable. It costs little in cash, and less in labor, while the results are sure to make one feel a pride in his industry and in his garden.

DESTROYING THE CUT WORM.

The following from the *St. Joseph* (Michigan) *Herald*, we regard as so valuable a discovery that we give it prominent editorial notice:

"The *Herald* takes great pleasure in being able to inform the agricultural world of the discovery of a simple method of exterminating the cut worm. The following communication is from Darius Boynton, of Benton, and is perfectly reliable:

"Mr. Chamberlain, Editor of St. Joseph *Herald*,—Dear Sir:—Permit me through your columns to relate a little experience and offer a few suggestions that may be of practical interest to our brother tillers of the soil.

"I have been wanting to set an acre or two of land to tomato plants, but have feared to do so yet, on account of the almost unprecedented prevalence of the Cut Worms. Some two days ago the thought occurred to me that the worm might be baited and taken so as to clear the land of worms before the plants were set. Accordingly I mowed some clover and applied it fresh in little compact wads about the size of a large apple; the result was, that on the next morning I found the worms had collected about the clover in great numbers, and after eating had secreted themselves in the soil within a distance of eighteen inches each away from the clover. Under and about one wad of clover, I took thirty seven worms.

"What the powers of locomotion of these nocturnal insects are I am not entomologist enough to tell; but as I was unable to find any worms six feet either way from the clover, I would suggest that if these wads of clover were placed say in every second or third row, and second or third

hill in the row, the worms would be attracted there and might mostly be taken. There may be other herbage of which the worms are equally fond. I am sure in point of economy it is much cheaper to feed these worms on some such herbage than to feed them on any tender garden plant.

"Hoping these suggestions may be of practical utility, I remain respectfully yours. D. BOYNTON.

"P. S.—Since writing the above my man reports finding sixty-eight worms about one wad of clover. D. B.

"P. S. No. 2.—I have just beat the man, as I have found seventy worms in and around one wad of clover. D. B.

"P. S. No. 3.—I have to give up beat. My man reports finding eighty-two worms in one hill. Query. May not these worms be profitable hermetrically sealed up for our fowls at the inclement season of the year when worms are scarce? D. B.

"P. S. No. 4, May 31st.—I have sown some salt about a few wads of clover but find it a failure. I now sift some Paris green and flour some about clover to see if I cannot poison these worms.

"P. S. No. 5, June 3d.—I find the Paris green a failure. Ye bug philosophers can you tell me of any poison with which to exterminate the worms?

"P. S. No. 6, June 4th.—I have it at last. I have this day destroyed with my own hands over 15,000 cut worms. I did it by pouring boiling water over and about these wads of clover.

Yours truly, D. BOYNTON.

"Mr. Boynton informs us that the hot water is only effective by being boiling, for where the worms are protected in any way from its full heat they are not destroyed. We hope to hear soon of many who have tried the experiment. We know of orchards of young trees nearly ruined by the cut worm. As many as 120 have been taken at the root of one tree."

[The value of Mr. Boynton's discovery, so enthusiastically stated, does not rest with the cut worm, but may be applied to many other root-predating insects. In many districts where the cut worm does not exist to any great extent, there is as bad an enemy in the larva of the *Lachnosterna*, May bug or cockchefer, which, as the "white grub," destroys hundreds of thousands of nursery trees annually, besides injuring many trees, the owners of which little suspect the cause. That these grubs prefer some roots to others, we have good evidence in the fact that they have been known to travel through a large block of tulip trees without materially injuring them, in order to get at the Cornus florida, or large flowered dogwood, of which they seem passionately fond. Some cheap and easily procured herbage could, no doubt, be found, by experiment, which would be eagerly preyed on by these root eaters, and then collected as Mr. Boynton has done the cut worm.]

SCRAPS AND QUERIES.

LOSSES BY THE WINTER.—*A Springfield, Mass., Correspondent* says: "Your article on 'The Causes of the Loss by the Winter' is not quite correct for this latitude"

[Let us have your views. It is only by a comparison of varied experiences that positive truth can be evolved.]

HÆMANTHUS TAXICARIUS.—An Evansville, Ind., correspondent sends us the following which we suspect refers to the plant above named: "I purchased, last summer, at an auction sale of plants, a dormant bulb without a label, and I have endeavored in vain to learn its name. The bulb is about 3 inches in diameter and is in a 6-inch pot; it remained dormant till last October, when it commenced to exhibit signs of growth, which finely resulted in the production of a single pair of broad, flat leaves of pliable texture, 18 inches long by 7 inches wide, gracefully reflexing over the sides of the pot like opposite jets of a fountain. After remaining awhile, they gradually decayed, commencing at the extremities and terminating at the base, leaving, when the next pair of leaves comes out, a distinct notch on either side of the bulb to mark its age; the one I have is evidently 7 years old.

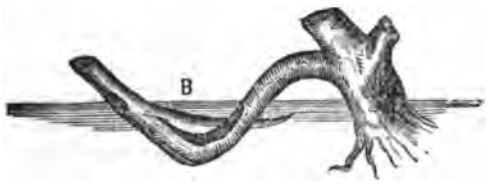
"If from this description you recognize the

plant, please name it in your next, also state what the flower is like, and the treatment it requires when dormant."

[The flower is like a bouquet of small scarlet cups if it be the plant we suppose. It will only flower freely when the plant is grown in the full sun-light.]

LAYERING—*S. C. B., Detroit, Mich.*, writes: "I do not clearly understand about the 'cut' in layering of roses, page 161, June number of the *Monthly*. I enclose drawing of bush with layer. Cut No. 1 is in the upright part, leaning to the right or from the *under side*. Cut No. 2 is in the angle and from the *upper side*, or inclining to the left. Which is the proper position for the cut, and what is upper or under cut please designate in my drawing, or one of your own, and by so doing, very much oblige a subscriber to your valuable *Monthly*."

[The best reply to our correspondent will be the accompanying illustration, which shows how at B the slit is made in the upper side.]



NAME OF PLANT.—*P. R., Burlington, Vt.*—The leaf appears to be Pleroma Benthamiana.

DEATH BY DROUTH IN WINTER.—*J. J. S.*, writes: "I have pondered your theory about the cause of the destruction of our evergreens, and wait impatiently to hear from experts—Hoopes and Sargent. In the interval let me ask what theory will account for the fact, that in two instances cedar trees with double stems have shown one prong or stem killed and the other left. The depth of the root, it being the same, must have been under the same influences. Is not the damage, here at least, to be traced above ground?

"Again, in hedges ninety native arborvitæs are gone and ten left; circumstances, as exposure, depth of root similar exactly. The small pox takes one or so of a family, but our diseased trees include ninety and leave ten or so. There is no theory, that I can conceive, fully accounting for the awful phenomenon of last winter's exploit.

"Then again, parts of trees, sometimes the tops and sometimes the lower limbs are gone, and the remainder as green as ever.

"We expect the experts to tell us, but whether they can say how the evil is to be avoided in future is another matter."

[We do not find the same difficulty in accepting the drought theory that our correspondent does. The small pox illustration is unnecessary when we can get better ones of the same class as the case in question. For instance, one hundred men may be shipwrecked or by other accidents be cut off from water for some time, all at once. They do not die from thirst all at the same moment,—but at the last "ten or so" will be found alive. And so in summer droughts, a hundred trees would be in a hedge suffering for water, and after the rain comes "ten or so" will be found only alive, and of these ten, perhaps one of a double stem will be killed, sometimes the tops, sometimes the lower limbs, will be alive or dead as the case may be.

Our explanation of this phenomenon would be that some trees and some parts of trees at the time of the attack, were either endowed with a greater vitality at that moment, or else that they had deeper roots, or a greater number of them, or had some better shelter, or in some way were better able to resist the drying influences than those which died.]

FRAXINUS HETEROPHYLLA.—A Columbia, Pa., correspondent refers to this beautiful ash in the following note. It is a variety of the English F. excelsior: "Enclosed are a few seeds of a tree which I found growing by the sidewalk in Newark, Delaware. They call it there an ash tree which it strikingly resembles in all respects save one. It has large, simple leaves, coarsely serrate, unequal, with long jointed petioles. If you know its name please write to me."

WILD CELERY.—*S. W. M.* says: "The wild celery on which the ducks feed in the Chesapeake, is said to be the *Vallisneria spiralis*, a very curious dioecious plant which is found in great abundance in that estuary."

FLOWERING PLANTS FOR APRIL.—Plants in bloom in the greenhouse at Rhosynmynydd, the suburban residence of T. P. Jones, Esq., Blockley, West Philadelphia:

Abutilon	striatum, Chinese bell
	vexilarium

Acacia	linearis, Wattle tree
Ageratum	coeruleum, Blue mist
Albuca	viridiflora, Bastard Star of Bethlehem
Alyssum	maritimum, Madwort
	variegata
Alstroemaria	pelegrina
Amaryllis	Johnsonii, Daffodil lily
Azalia	Indica ardens
	Beauty of Europe
	Bride
	Coronata
	Double red
	Perryana
	Van Gertiana
Babiana	disticha
Calla	Æthiopica, Lily of the Nile
	major
	minor
Camellia	japonica, Japan rose
	Sarah Frost
Centradenia	floribunda
Cineraria	Kingii, Ragwort
Cistus	Lusitanica, Rock rose
Cobeæ	scandens
Cuphea	platycentra, Cigar flower
	Danielsiana
	strigulosa
Serrisea	foetida, fl. pl.
	variegata
Eupatorium	elegans, White mist
Eranthemum	pulchellum
Geranium	Zonale, Heron's bill
	varieties
Heliotropium	Peruvianum, Heliotrope
Lantana	Sellowii
Lopezia	miniata
Mahernia	odorata
Nierenbergia	gracilis
Oxalis	Japonica, Wood sorrel
	floribunda, red and white
Pelargonium	piperita, Stork's bill
	quercifolium
Rogiera	thyrsiflora
Schizanthus	retusus
Salvia	coccinea, Sage, (scarlet)
	rosea
	splendens
Siphocampylos	bicolor
Tritonia	lineata
Tropæolum	Lobbianum, Indian Cress

COLD FRAME.

Anemone	coronaria, Wind flower
	varieties
Bellis	perrenis, fl. pl., Daisy
	fistulosa rubra, Daisy, (Quilled)
	alba
	monstrosa and others
Scilla	Siberica
	hyacinthoides
Primula	vulgaris, fl. pl., Primrose
	alba, double White
	crimson, " Red
	lilacina, " Lilac
	lutea, " Yellow
	sulphurea, " Sulphur
Viola	Odorata, fl. pl., Violet
	alba
	pallida
	purpurea

Hardy Herbacious Plants and Bulbs in the open air :

Arabis	alpinus, Wall cress
Aubretia	purpurea
Bulbocodium	vernum
Crocus	vernus purpurea, Crocus
	lutea
Eranthus	hyemalis, Winter aconite
Ficaria	ranunculoides, fl. pl., Pilewort
Galanthus	nivalis, Snowdrop
Helleborus	Olympicus, Hellebore
Hyacinthus	Orientalis, Hyacinth
	varieties
Narcissus	jonquilla, Narciss
	incomparabilis
	poeticus
	varieties
Phlox	subulata, moss pink
Primula	veris, Cowslip
	varieties
Scilla	siberica, Squill
	hyacinthoides
Viola	Odorata alba, Violet

TREES AND SHRUBS IN FLOWER.

Acer	rubrum, maple, (red)
Betula	pendula, Birch
Cornus	mascula, Dogwood
Cydonia	Japonica, Japan Quince
	rosea
Daphne	mezereum, Spurge laurel
Dirca	palustrus, Leatherwood
Erica	carea, Heath
Forsythia	viridissima, Golden Bell
Fraxinus	excelsior, Ash, (weeping)
	pendula
	aurea
Jasminum	nudiflorum, Jasmine
Juniperus	virginiana, Cedar, (red)
Magnolia	Conspicua

	purpurea	
	gracilis	
	Soulangeana	
Mahonia	Japonica, Barberry	
	Bealli	[thorn
Prunus	Spinosa, fl. pl., Sloe or Black-	
Shepherdia	argentea, Buffalo Berry	
Ulmus	fulva, Elm	
	pendula	

BIRDS.

The sweet piping note of the Meadow Lark, (Sturnella ludoviciana), was heard from the first of the month; the first Swallow's, (Hirundo rustica), appeared on the 11th inst.; the House Wren, (Troglodytes ædon), and the Pewee, (Muscicapa fusca), appeared in the same week. The cooing of the Turtle Dove, (Columba Carolinensis), was heard in the last week; also the first Cat-birds, (Orpheus Carolinensis), arrived in the last week of the month to their old breeding places, and to cheer us with their melodious notes and their familiar alarmed scream.

THE WASTE BASKET.—We find many correspondents have a dread of the waste basket. It may be as well to say that it is rare that we receive a communication but we feel indebted to the contributor. We may not deem the article fitting as a whole, but we always appreciate the kind motives of the sender, and if inappropriate as a whole, we generally give the pith of the idea.

Reserving therefore, the right to put into shape to suit our own ideas of propriety, we rarely receive anything that we cannot use. There are at times reasons for delay, but no one need fear but his favors will be ultimately accepted in some form or another, with the editor's best thanks. Especially are we glad of notes for this column. There is nothing we so much enjoy as these pleasant little chats with our readers.

DWARF ORANGE.—*Mrs. N.* says: "I have a Dwarf Orange tree, a little over one foot in height, with just a dozen oranges. They have been ripe now fourteen months; the tree has bloomed twice since, and is now full of buds. The oranges measure from four to six inches in circumference, and are shaped like a lemon, though orange in taste and color. This little orange plant has passed through all sorts of vicissitudes, still they cling. May not its uncommon fruitfulness be owing to the very close pruning which I have continually given it? Can you tell the variety?"

[No doubt the pruning has effected it. We do not recognize the variety.]

NAMES OF PLANTS.—*Mrs. A. B. C. N., Phelps, N. Y.*, writes: "I send several flowers for name, marked Nos. 1, 2 and 3. I have some Lilies also, which were sent by a friend from South Africa, called Natal Lilies. They are quite large, and pear shaped; they have never bloomed, and show no disposition to do so; have been kept five or six years under glass. We propose this summer to set them in the ground, and treat them as other cape bulbs. Could you from this description give us any information?

[No. 1, Hepatica triloba—the double pink variety; No. 2, Arabis alpina; No. 3, Leucoium æstiovm. The lilies are some amaryllis.]

BEGONIA HYBRIDA MULTIFLORA.—*Mrs. S. E. N.* says: "I would speak to the 'flower sisters,' of my beautiful Begonia *hybrida multiflora*, which was a tiny thing when purchased two years since, but soon commenced growing rapidly and blooming profusely. It is now over five feet in height, trained on an oval frame, and in winter and summer—indeed all the year around, has been thus far a thing of beauty, and pays probably as well as anything a lady can cultivate in the parlor; but will you please tell us of any that are better than this one, and oblige many readers? One as good as this, but of a scarlet color."

[We do not recognize this under the name, but suppose it is Begonia Saundersii, which is a hybrid between, we believe, B. incarnata and B. Fuchsoides. If this be the one, it is the best for the purpose stated. The old B. incarnata is a very good winter and summer flowerer, of a pink color; but the newer B. Weltoni, promises to be much superior.]

CARD OF THANKS.—"Permit us through the columns of your paper to acknowledge the receipt of a lot of Carnations, Roses, Tuberoses, &c., in all about six hundred and fifty plants, from Mr. Peter Henderson, of Jersey City, and a lot of Roses from the Dingee Conard Co., to aid us in again commencing our business, destroyed by the late fire in our city. Also we thank our unknown Geneva friend for his kind suggestions in the last issue of your *Monthly*."

Yours Respectfully,

PETTIGREW & REID,

May 22d, 1872. Chicago, Ills.

PINUS CEMBRA.—*A. H., Sank City, Wis.*, says: "This is called Arve, (prounounced Arfey), in Switzerland. The nuts are of delicate flavor, and are said to be a certain remedy in consumption."

RHUS AROMATICA.—*W. T., Kansas City:* "I send you two sprigs of a bush, with the nearest to bloom I could get. The bush grows on rocky ground, about six feet in height; rather uncouth in appearance. Please give us the name through the *Monthly*, if you can?"

[*Rhus aromatica*, a plant of the poison vine family, but without, we believe, any poisonous quality. In the rocky mountains of Colorado, stock browse on this plant; but we have not observed that they touch it in southern Illinois, where it is also common. It is worth growing as an ornamental bush, as it will bear trimming, and the clusters of red berry like seeds are pretty in fall.]

CORNUS PANICULATA—Is the name of the beautiful shrub referred to by a Doylestown correspondent, in the following note. We have often been surprised that it is not more grown. It is found wild in cool mountain districts:

"I send you the flower of another shrub to name, which has puzzled several experienced florists. I have several plants in my grounds, about six feet, which are very handsome when in bloom. I think the shrub originated in Mr. Joshua Fisher's grounds, near Philadelphia, but am not quite certain."

THE RED MAPLE.—*W. E. W., Rock Island, Ills.*, says: "In your *Gardener's Monthly*, for 1870, I recollect seeing a recommendation of the Red Maple. Now in Ellwanger & Barry's Catalogue, there are two red maples, Acer Colchicum rubrum, and Acer rubrum. Now I wish to know which is the one you recommend."

[The reference in the article was to the American Red maple, Acer rubrum. But the Grecian Red maple, Acer Colchicum rubrum, is also a beautiful tree. The habit of the latter is, however, more like that of the Norway Maple, It is not yet common enough for street trees. The Red American Maple can be had rather abundantly. It does not grow quite so rapidly as the Silver Maple, but requires little "trimming" to keep it within bound.]

REPEATED CUTTING BACK OF ASPARAGUS.—*Mr. Sargent* writes: "The *earliest*, *best*, and *largest*, Asparagus in this neighborhood, is in the garden of a slovenly cultivator, who cuts all his spears or seed stems down immediately after the asparagus season is over—repeats this process once or twice during the summer, thus never having any seeds; in fact, at this moment, his beds are as smooth as the back of your hands. And this is not only their usual appearance, but this has been his habit for five or ten years. Now if my neighbor's course is correct, all other cultivators of asparagus are *entirely wrong*.

I should like to hear what you have got to say about this. I am aware the ripening of seed somewhat diminishes the vitality of the plant. All growers of plants are told not to let them seed; but on the other hand, your theory about strengthening lawns by occasionally letting the grass grow to kill out the weeds, on the principle that the longer and stronger the tops of grass, the longer and stronger the roots, would be entirely opposed to my neighbor's theory of practice with his asparagus."

[This very suggestive note of Mr. Sargent's may be of great value to cultivators, if they will give it careful study, in connection with known laws of plant life.

First, there is no doubt, for this has been proved over and over again, that if we cut away every spear of asparagus as soon as it appears above the ground, never allowing *one* to appear above the ground, the plant would be weakened; and if the same course be pursued the second year, it would be entirely destroyed. This plan is successfully pursued in the destruction of Canada Thistle, Horse Nettle, and other terrible pests.

Secondly, it is also well-known that after the time of flowering, there is a terrible strain on the vital functions of the whole plant, root and branch. After flowering the Mignonette produces seeds and dies, but if every flower be picked off as it appears, the Mignonette becomes a perrennial, and there appears no limit to its duration. The strength of the root is, therefore, assisted by non-flowering or fruiting. This accords with Mr. Sargent's observations on the asparagus.

But we must not forget our first point. Remembering the first and second position together, it would seem to be a good thing to let asparagus grow up to the time of flowering, and then to cut the stems entirely away. Mr. Sargent also suggests a danger which may occur in lawn man-

agement. In order to strengthen the roots, and to smother out fine growing weeds, one might let their lawns go uncut for one season; but the grass should be cut *before flowering*, or the exhaustion will be greater than the gain. Agriculturists also may reap a lesson. If they wish to take hay a second year from the same roots, the grass should be cut as early as possible the first season.

We are much indebted to Mr. Sargent for this note, and should be glad to have our correspondents send such observations oftener.]

IMMEDIATE EFFECT ON HYBRIDIZED CORN.—*Mr. Jacob Moore, Brighton, Monroe Co..N. Y.*, writes: "I send you this day by mail, half an ear of yellow corn, fertilized principally, with evergreen sweet corn pollen The yellow corn from which this specimen came, was perfectly pure when planted, and you will observe that not a single kernel of sweet corn, or anything like it, is to be seen on this ear, although it has grown alongside of sweet corn mentioned, planted on both sides of it at different times, so that it could not fail to be partly or mainly fertilized by it. Some of the ears of yellow corn I fertilized by hand with the sweet corn pollen, before it could have been impregnated by it own pollen, (this is a point I understand, I believe, if any one does), and not a single kernel of sweet corn, nor a kernel appearing to be a cross or mixture of the two varieties, could be found among the yellow corn. The half ear I send you did not mature as fully as some of the others, and therefore is not quite as yellow as it would have been otherwise; but it is mature enough to grow and that will answer my purpose. Now for the purpose of proving that the mixture is shown the second year, and not the first, I wish you to plant this corn *alone*, at least fifty rods or more from any sweet corn. It is my opinion that it will come up mixed with sweet corn; or if it was fertilized entirely with the sweet corn pollen, it may have the uniform appearance of a cross between the two sorts. You had better make a square plat of the planting, that the corn may be better fertilized than it would be if planted in one or two rows. I hope you will not fail to make this trial, and publish the result."

[The writer has not room for all the corn sent, but will sow a few of them with pleasure.]

BOOKS, CATALOGUES, ETC.

Window Gardening. Edited and Published by Henry T. Williams, New York.

Mr. Williams is doing excellent work by endeavoring to diffuse a knowledge of gardening, and a taste for floriculture, by means of very good works, at a low figure. With this season he commences the *Floral Cabinet*, a monthly at a merely nominal price, per annum. This book is one of the same class. We must award to it the merit of being, perhaps, the cheapest book on flowers ever published in this country. Three hundred pages, profusely illustrated, beautifully printed, and elegantly bound, for $1.50, is not an every day offer.

It is hardly to be expected that a work so cheap should excel in all things. The reader who expects to find it an infallible authority in the spelling of plants' names, will be disappointed; but beyond this there is the fact that an immense amount of useful matter has been brought together that will well serve the purpose of the very large class of plant lovers for whom it is written.

There is a matter of public importance suggested by Mr. Williams' book, which is worthy of note. Mr. W. does not profess to be the author of it, but its "Editor." Much of the matter has been contributed by friends; other has been selected from various sources. Mr. Williams, had he been less honest and conscientious than he is, would have done as some other horticultural writers have done, appropriated other people's works, and left the reader to infer that it was his own. But we find in the end of the book, a list of periodicals and books to which the editor was indebted. But it seems to us that this is scarcely sufficient acknowledgment. It would save editors a world of trouble to be sure, if we could say at the end of each year of our labors: "we have been indebted during the past season

for many articles and ideas to the *Chronicle*, the *Gazette*, the *Idler*," and so on; but etiquette, and we think properly, calls for a credit with each transcript, and we think the same comity should prevail in books as in magazines. But Mr. W. in this has done no more than to fall in with a growing fashion, without perhaps much reflection, and we are sure he will agree with us when the point is again under consideration.

Philadelphia and its Environs. Published by J. B. Lippincott & Co., Philadelphia. Price 50 *cents.*

Philadelphia is a somewhat modest place, so far as any boasting of its attractions is concerned. It is so full of revolutionary relics that the people seem to have fallen back on them as quite sufficient to satisfy the curiosity of strangers for all time to come. Independence Hall, Carpenter's Court, the place where Penn signed the treaty, with perhaps a little of the modern, as late as the last generation, in the shape of Girard College, is about all they dare speak about, unless perchance a few may whisper a word or two about Fairmount Park. This little book of some eighty pages, gives illustrations of a very large number of interesting spots, with some account of them, which cannot fail to be of great value to any one who may expect to visit the city.

We give below one of the illustrations,—the proposed new building of the Academy of Natural Sciences; the immense collections of which always attract visitors to Philadelphia. The buildings are at present too small for the collections. Some few years ago the city voted one of the public squares to the institution for a building, and the citizens subscribed $100,000 in cash; but the legislature overruled the city's desire, and refused to sanction the gift of the land. As

[*Proposed New Building of the American Academy of Natural Sciences, Philadelphia.*]

there is no longer any hope of getting this refusal of the legislature reversed, the Academy is raising another $100,000 to erect the building of which we give the present engraving, and the work on it is now being commenced. It will probably be the finest building devoted to science in America.

Fourth Annual Report of the Insects of Missouri, by C. V. Riley, State Entomologist.

Those States which have as yet, no State entomologist, would assuredly follow in the wake of Missouri, if reports such as these of Mr. Riley could fall into the hands of the leading statesmen. This issue is chiefly devoted to the Colorado Potato Beetle, the Grape Phylloxera, and the Silkworm family. Besides full histories of these, there are numerous shorter notes of other insects, both noxious and beneficial.

Transactions of the Hampshire, Franklin and Hampden Agricultural Society, of Mass., for 1871.

This we have received through the courtesy of A. P. Peck, Esq., the Secretary. It gives an encouraging account of agricultural prosperity in that region.

Ninth Annual Report of the Trustees of the Massachusetts Agricultural College.

This institution seems in a highly prosperous condition. During the past year extended experiments were made in Beet culture, the detailed account of which makes this report a particularly valuable one.

Worcester Co. (Mass.) Horticultural Society Transactions. from Edward W. Lincoln, Secretary. Very pleasant reading is the report of the festival of commemoration, held April, 1871. The speeches on the occasion were appropriately beautiful.

Annual Report of the Park Commissioners to the city of Baltimore.

Druid Hill Park was commenced twelve years ago. The park improvements are carried on by a tax on the passenger railroads. The plan seems to have worked very well. The improvements projected are still incomplete, but much has been done the past year towards the end proposed. Most of the work of the past season seems to have been in making new roads and drives. There are some valuable figures in this report, especially in regard to road making. A favorite argument with many is that a good road is cheapest in the end, which may be true if the road in question be really a good one; but this report shows that in the New York park, roads where large sums were spent on making *good* roads, over $92,000 were spent in one year on *repairs*. There are two sides to the road story.

On the Influence of the Blue Color of the Sky in developing animal and vegetable life. By General A. J. Pleasanton.

This, in pamphlet form, is a full statement of General Pleasanton's experiments, a very full account of which we gave at the time of the reading before the Philadelphia Society for Promoting Agriculture. Since then the subject has attracted world-wide attention. We note however, that many who profess to repeat the General's experiments, do not understand his point. He does not employ *all* blue glass, but simply strips of blue, alternating with much wider strips of common glass. All should read this pamphlet before experimenting.

On the natural mode of the distribution of plants over the surface of the earth. By Prof. Albert U. Prentiss, of Cornell University.

This is the essay which gained the Walker prize, offered by the Boston Society of Natural History, in 1871.

Prof. Prentiss believes that only one plant of a species was originally created, and that these creations took place, not in one spot, as was believed of old, but in numerous "centres" in various parts of the earth's surface. From these centres plants have been distributed by various means, and the essay shows what they are. It is a complete chapter on this interesting part of botany.

Algæ Rhodiaceæ. A list of Rhode Island Algæ, collected and prepared by Stephen T. Olney. The list comprises 189 species.

History of the Fruit Destroyers. By Thomas and D. B. Wier. Lacon, Ills.

A pamphlet of fourteen pages, chiefly intended to aid the introduction of Wier's Codling Moth trap.

Ornamental Catalogue of Hoopes Brother & Thomas, West Chester, Pa.

We noticed this among general catalogues when received; but it is worthy of a place amongst books. It is more than a catalogue. It is better worth a cover of green and gold and a high price, than half the so called books issued. The descriptions are brief but complete.

American Pomological Society. Report of the proceedings of the Richmond session, 1871.

It is nearly a quarter of a century since this society was first organized, and there is no question but it has been the means of awakening an intelligent interest in the knowledge of fruits, which could have been fostered in no other way. Pomology, so named, is really not a science. There are no rules by which any one may know one fruit from another. A knowledge of fruits depends rather on a good memory, and frequent opportunity for a comparison of notes, than on scientific rules. What we should have experienced in this country without the guidance of a society like this, it is hard to tell. With our immense extent of territory, and the resultant changes in the form and character of fruits, the whole subject of fruit nomenclature would be in utter confusion. Even countries smaller than ours have found wisdom in following our example. Little England, no larger than the hand is to the whole body as compared to our country,

has still a society modelled on ours, and the countries on the main continent of Europe have their Pomological Societies also. Much of the success of societies of this character, depends on the presiding officer; and Col. Wilder's name will ever be associated with this first great, and very successful one. Most of us are familiar with his portrait; but it is meet and proper that wherever else it may deserve a place, it should, at least, be preserved in connection with this association, and we are, therefore, very glad to find it in this volume.

In regard to the matter of this volume, we must say that it equals in this respect, any of the former ones, and does credit to the industry and good judgment of the society's secretary, Mr. F. R. Elliott. In one or two instances we notice that he oversteps his duty, and appends in foot notes his personal opinions. This is dangerous ground, and we would suggest to him to abandon this practice, or it may get the society into trouble. If he has anything to say, the floor of the society's meeting is the place to say it. Then if he make an error, there is a chance for the correction to go with the remark. Here for instance he tells the reader that "the secretary would here remark that the conductors of journals and the publishers of books are utterly ignorant of varieties of fruit or plants." Our experience is that those who have a knowledge of fruits and plants are found among all classes of society, lawyers, merchants, doctors, poets, painters, soldiers, sailors, and what not; and what there should be in the profession of an editor of a journal or the publisher of a book, to make it impossible for them to know anything about fruits or plants, is more than we can tell. To us it seems that a foot note like this in a report of this character, is unjustifiable, and mars the unqualified praise which we should otherwise be glad to give to Mr. Elliott's share of the work.

The next meeting of the society will be held in Boston, in 1873, and we note in this report that there are many committees appointed to report on matters of interest to the next meeting. We give the following, so that all interested may send any observations that may help these gentlemen in their labors, to any of the names given:

To examine into the cause of the early failure of apple trees on the limestone soils, south of 38° north latitude: W. C. Flagg, of Illinois, chairman; Thomas Meehan, Pennsylvania; Robert Manning, of Massachusetts.

To inquire whether trees ever require pruning: Wm. Saunders, of District of Columbia, chairman; Dr. Stayman, of Kansas; D. B. Wier and W. C. Flagg, of Ills.; Thomas Meehan, of Pa.

Committee on codling moth: Charles Downing, of Newburg, chairman; Mark Miller, of Iowa; Parker Earle, of Illinois.

Committee on the cause and remedy of pear blight: P. J. Berckmans, chairman; Thomas Meehan, Wm. Saunders, Robert Manning, Josiah Hoopes.

In connection with this part of the report, the secretary inserts a letter from Mr. Tallant, who says: "tree blight is entirely beyond the knowledge of the most careful and observing fruit growers." It is rather hard on the members of the committee appointed, to predict their failure before hand, unless we suppose that superficial students may, perchance, stumble on some facts which "careful and observing ones" find entirely beyond their reach. But let us hope for better things.

The Hoosier Schoolmaster. By Edward Eggleston, New York. Orange Judd & Co., through Claxton, Remsen & Haffelfinger, Philadelphia.

We handed this to our junior, who from his age and peculiar studies, is well fitted to give an opinion of its merits—and thus he reports:

This is a story of western life twenty or thirty years ago. It is well written. Mr. Eggleston, to my mind, delineates character with the skill of Dickens. If the young readers of the *Monthly* read it with the same pleasure that I have, they will be very happy. Moreover, the publishers have made a very pretty book.

NEW AND RARE FRUITS.

THE "DOMMESTA BESSARABIA,"—A NEW RUSSIAN APPLE.—Fruit round, conic, pale yellow, with faint blush on one side; cavity narrow and shallow; stem *very* short; basin medium in depth and breadth; calyx closed; flesh yellowish white, coarse, porous, breaking, *acid*,—to our

taste a third rate apple—not so good as either of its "illustrious predecessors," Duchess of Oldenburg or Red Astrachan.

We should consider it of little or no account in the line of acquisition to an old orchard, but valuable to those commencing new orchards, on account of its promising so very early and abundant fruitfulness. No doubt it will be found a fair cooking apple, and *will* do to eat from the hand rather than none, or to pay western prices for better by those who may raise it. However, we do not know as the specimen tried should be taken as a fair test, for though the apple had began to decay before cut, it appeared immature, as the seeds were but slightly colored. Mr. Adams, in a note accompanying the fruit, says:

"I send you by mail to-day a specimen of 'Dommesta of Bessarabia.' The cions were received from the Department of Agriculture two years ago and top-grafted. They made a slow growth but I never saw such bearers. Some of the cions not more than six inches long would have a half dozen apples, and those of twelve to twenty inches had frequently a dozen or more specimens, all very nearly of uniform size, varying a trifle larger or smaller than the one I send you."—D. W. ADAMS, in *Western Pomologist.*

COWING'S SEEDLING STRAWBERRY.—Last year we noticed the large leaves of this variety; now Mr. C. sends us fruit. It was in no condition when received; but the stems were flattened as we sometimes see in asparagus, and the result is that the fruit are set in dense bunches, like a fashionable bouquet of flowers. If it always come like this it will be a decided novelty. As to its garden value, we cannot of course say.

NEW AND RARE PLANTS.

IMPROVED WALL-FLOWERS.—We note by the *Gardener's Record* that improvements are yet being made in these old-fashioned flowers.

PAYNE'S PERPETUAL GERANIUM.—Mr. Cannell, Station Road, Woolwich, exhibited two fine groups of succulent plants, and Mr. Payne, florist, Belvedere, a group of zonal pelargonium, *Payne's Perpetual*, a dwarf-growing and free-flowering variety, which is said to bloom continuously throughout the winter. The flowers are of a moderate form and of a soft scarlet hue, and the plants exhibited were exceedingly well flowered. The habit is dwarf and compact. As exhibited, it had the appearance of being a most useful variety for winter decoration. Thanks to the exertions of the honorary secretary and the committee, the exhibition was a decided success. The judges were Mr. Hull, of Leyton, Mr. Cannell, of Woolwich, and Mr. George, of Putney Heath.—*Journal of Horticulture.*

NEW SUNFLOWER.—When in the trial ground of Messrs. Sutton and Sons the other day, I was struck with a large group of a new double Sunflower, which certainly merits attention. The flowers average ten inches in diameter, and are so full and globular that they bear more the appearance of a gigantic quilled aster than of a sunflower. The average height is four feet, and the flower-heads stand boldly above the foliage. Altogether it is a decided acquisition in its way, and very valuable for half-wild parts of the pleasure grounds, where the ordinary coarse-growing varieties would be entirely out of place. The botanical name is *Helianthus globosus fistulosus.*

ÆCHMEA MARIÆ REGINÆ.—This is undoubtedly one of the most superb Bromeliaceous plants ever introduced to the gardens of Europe, and during the past season was awarded a first-class certificate at the Regent's Park Botanic Society's exhibition, a first-class certificate at the Royal Horticultural Society's exhibition, and also a special silver medal for its great beauty and superior excellence. It is a beautiful stove perennial, of robust habit, the leaves are arranged in a vase-like manner, recurved towards the end, from 12 to 18 inches long, and dark green. The flower-spike is erect, and rises from the centre, the lower portion clothed with large oblong boat-shaped bracts of a rich magenta shaded with rose, and which remain for two months in full perfection; the upper portion is thickly studded with flowers, which are tipped with dark blue, changing with age to rose.—B. F. WILLIAMS.

DOMESTIC INTELLIGENCE.

MARKET VALUE OF ROSE LEAVES.—A lady having asked the Farmers' Club of N. Y. city if rose leaves, used so extensively in the manufacture of perfumes, might not be gathered and dried with profit, and whether there is not a market for them, A. S. Fuller, responded: "Rose leaves are imported by our druggists, and cost about $1.50 a pound. It is not, however, our common garden varieties that furnish the rose leaves of commerce, but the red damask rose, so largely cultivated in some portions of Europe, from which the oil of roses is made. If the writer of the above communication wishes to go into the rose leaf business she would first have to establish a reputation for producing a good article before it would be in any great demand. I think the price of labor in this country would greatly interfere with the profits."

If the dried leaves bring but $1.50 per pound, what wages could a woman make per day gathering them ?

LARGE PECANS.—Mr. T. E. Williams has presented us with some specimens of Louisiana Pecans, grown upon his place, which for size, we have never seen surpassed. The largest of them measure two inches in length by 13½ 16ths of an inch in diameter, and the smallest, in a lot of some two dozen, are but a fraction below. They are of the paper-shell variety, and Mr. W. informs us that the trees are annual and profuse bearers of a fruit that is uniformly large. We have no doubt that the culture of this native fruit can be made a source of great profit in a large portion of our State. The fact that the trees do not come into bearing under twelve or fifteen years will deter most men from planting them; but when we remember that they grow as any other native forest tree, with very little care or attention after planting, we should not fail to have them occupy such grounds as are not otherwise more profitably appropriated, and we are sure that a little attention to this matter will provide many a rich heritage to those who come after us, even if we fail to reap any of the rewards ourselves. No land owner should allow a year to pass without planting some tree that will compensate to posterity for the waste that he is annually committing upon the forests. We have only a usufructury interest in the soil, and law and justice alike demand that the usufructuary deliver the object of the use to his successor in at least as good condition as when he received it. Are our people acting justly to posterity in this regard ?—*Southland.*

WOODWARD'S GARDENS.—We recently visited these gardens, and were much gratified by the many improvements in progress. Among these the public will doubtless find the great assembly-room, amphitheatre, hall of recreation, or by whatever other name it may be designated, which is now in the course of erection, and which will soon be finished, a means of amusement suited to the taste of a large majority of the visitors. For ourselves, the magnificent appearance of the really superb collection of Acacias, now in full bloom, together with the luxuriant growth of the various evergreens and deciduous trees and shrubs, were a source of extreme pleasure. Other plants also attracted our attention—a fine specimen of *Dracœna fragrans* coming into bloom, the *Phormium tenax* (New Zealand flax), pushing forth its flower stems, the Ramie plant, with others too numerous to mention here; while within the conservatory, tropical-house, etc., etc., we found a splendid collection of Azalias in full bloom; various varieties of the Coleus and other foliage plants in full leaf, and presenting a gorgeous appearance. This collection is very rich in foliage plants, having a fine relay of specimens in readiness to be brought forward. We were, in fact, much more pleased with the reserve than with those on exhibition. The Orchidaceous plants are also well represented. A *Banana* in flower, and forming its young fruit, attracted our attention, as did also four luxuriant specimens of *Anana*, (Pine-apple) now fruiting; by the way, we saw from 20 to 30 others equally promising in reserve. In fact these very interesting gardens are evidently increasing in public value, and we do not believe that they, although very popular, are appreciated as they deserve, affording as they do, not only recreation and amusement, but the means of study in botanical science, as well as intellectual improvement, and we hope that the enterprising proprietor will meet with ever increasing encouragement during the ensuing season.—*California Horticulturist.*

HORTICULTURAL NOTICES.

ACADEMY NATURAL SCIENCES OF PHILADELPHIA.

At the meeting of June 3d, the following of Horticultural interest occurred:

Mr. Thomas Meehan presented some specimens of the common Asparagus, and remarked that in consequence of observing last year so many plants that had evidently flowered, producing no seeds, he had this year examined them in a flowering condition, and found them perfectly dioicious. Imperfect stamens existed in the female flowers, but they were never polleniferous. An occasional gynœcium in the male flower would make a weak attempt to produce a pistil, but no polleniferous flower ever produces a fruit. There was a great difference in the form of the male and female flowers The former were double the length of the latter, and nearly cylindrical, while the female flower was rather companulate. Other observers had nearly made the discovery of diœcism in this plant. The old "English Botany" of Smith, gave it the character of being occasionally imperfect, and the authors of "Deutchland Flora" considered it as occasionally polygamous; but Mr. M. was satisfied from a half day's investigation among many plants that in this region at least the Asparagus is never perfect, but truly dioicious.

He had observed another matter, small, but which might be of importance to systematic botanists, as well as to those engaged in evolutionary studies. One flower had a quadrifid stigma and a four-celled ovary. The trinate type, or its multiple, is so closely associated with the endogenous structure that he considered this circumstance particularly worthy of note.

The male flowers seem very attractive to insects, various kinds of which seem to feed on the pollen. The Honey Bee was a frequent visitor. None seemed to be attracted to the female flowers. In the division into separate sexes, the plant had gained nothing in the way of aid by insect fertilization. Fertilization seemed wholly accomplished by the wind. The male flowers are produced in much greater abundance than the female ones.

Mr. M. added that this discovery had a more than usual practical importance. Many attempts had been made to improve the Asparagus as garden vegetables, and the farm cereals had been improved; but it had often been questioned whether these improved forms would reproduce themselves from seed as other garden varieties did. The tendency of thought the few past years had been in the direction of the belief that permanent varieties could be raised, and several improved kinds had been sent out by seedsmen, and were popular to a considerable extent. He said he had himself inclined to this opinion; but this discovery of complete diœcism in Asparagus whereby two distinct individual forms were required to produce seed, rendered a true reproduction of one original parent impossible, as the progeny must necessarily partake of both forms.

Mr. Meehan further said he had been requested by one of the members, Professor Frazer, to call the attention of the Academy to an orange on the table, which had produced a second smaller fruit under the rind of the larger one. The orange externally presented nothing unusual, but on being peeled the second one was found of about one-fifth the size of the principal one, of a turbinate shape, and fitting into the lower larger one as into a cup. This upper secondary orange had the regular colored skin, with its endopleura, and the whole enclosed by the regular epidermis of the primary fruit. He explained that a fruit is formed by the sudden arrestation of growth in a branch, and what would be under ordinary circumstances an elongated branch with its several nodes, and axillary leaves and buds, is, to form a fruit, compressed and condensed, so to speak, into the organized mass we call a fruit. In the orange before us the central axis after having had its elongating direction arrested, made another feeble departure onward, and the small orange was the result. These sudden accelerations of a nearly arrested growth, are, though not common, sometimes seen in fruits. They have been most frequently seen in the Pear. Here the renewed growth of the central axis bursts through the primary cuticle, as seen by the manner in which it is drawn up with the secondary growth. He believed he had seen an instance of a pear making three series of growths in one fruit. In the Larch it ts quite common to find a branch arrested in its developement to form a cone, push out again into vigorous growth at the apex, after resting as it were for nearly a month while the cone was forming. These Larch cones with branches growing as it were completely through them, are very often seen.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XIV. *AUGUST, 1872.* *New Series, Vol. V. No.* 8.

HINTS FOR AUGUST.

FLOWER GARDEN AND PLEASURE GROUND.

It has been for many ages customary with many minds to associate excessive heat with the eternal sum of all evils, and to judge by the chosen few who fly from the wrath to come, in every closely built city, from the sweltering heats of August to the cool sea side breezes, or to shady retreats in country places, there is no doubt this terrible city heat is a great trial, and may fairly be considered as one of the great recruiting agents in the constantly increasing army of lovers of country life.

But this heat which gives so powerful an impulse to country preferences, should teach the professional Horticulturist also its lesson; and that is, in laying out and designing country places, one of the chief studies should be how to make a place agreeable even in the hottest weather.

Not near enough attention is given to this matter even by many experienced men. Large plats of hard dry gravel, shadeless walks, and struggling flower beds, make up the gardening of by far too many places, the continued effort to keep which in order without much compensating advantage, makes many soon tire of what is thus miscalled "Pleasure" Gardening.

Gardeners often express wonder that so and so with "plenty of money" takes no interest in keeping his grounds nice. Only a deep-seated love of country life, battling against discouragements, can keep so many in the good path that we find in it; and this, not because there is no enjoyment in country life, but because few study out properly the means to effect the good ends. We imitate too much the European styles of gardening, forgetting that our peculiar circumstances require peculiar treatment.

In all suggestions for the improvement of grounds, the subsequent cost of keeping in order should be studied well. This is the rock whereon so many strike. Walks and roads are particularly expensive to maintain, and should never be made without there is an evident necessity for them. Shady grass walks, with masses of flowering shrubs on each side, and kept mown a few times a year, are as pleasurable parts of a pleasure ground as can well be provided, yet we very seldom see them employed.

Rustic arbors, as they are usually made, are very mean things for summer comfort. They are too close and hot. They suit European climates better. They should be open all round.

The best arbors however, are made by the weeping ash, grafted high, and spread out well, but not allowed to have their branches hang too low down. A circulation of air all round is essential to the comfort of an arbor.

So many fall in love with the country and about this time make up their minds to permanently reside, that these general suggestions may have some value. We will now give some more particular directions for garden work, which may help those who have already commenced.

In preparing the grounds, it should be remembered that grass and trees are not only required to grow therein, but that they must *grow well.* The top soil of the lot is often covered by the soil from the excavations, trusting to heavy manuring to promote fertility. But this is a too slow and expensive process. The top surface soil should, in

all cases, be saved, and replaced over the baser soil. Also, where it is necessary to lower a piece of ground, the top soil should be saved to place over again. The depth of the soil is an important matter, both for the trees and the lawn. It should be at least eighteen inches deep. In shallow soils grass will burn out under a few days of hot sun. In a soil eighteen inches deep a lawn will be green in the driest weather. For the sake of the trees, also, the ground should be not only deep, but rich. If from thirty to forty loads of stable manure to the acre could be appropriated, it would be money well-spent. Life is too short for it to be an object to wait too long for trees to grow, and planting large ones is an expensive, as well as unsatisfactory business. A tree in a rich and deep soil will grow as much in one year as in five in a poor one. So in preparing a lawn, it is fortunate that, while aiming at the best effects, we are helping our trees also. It is generally better to sow for a lawn than to sod, where much of it has to be done. The edges of the road must, of course, be sodded, the balance neatly raked over and sown. The best kind of grass to be employed in seeding is a disputed point, and it will, no doubt, depend in a great measure on the locality. Philadelphia and northward, the perennial rye grass is excellent. It commences to grow very early, and has a peculiar lively, shining green. South of Philadelphia it is very liable to get burned out in summer, and the Kentucky blue grass would be much better. It is much the best to have but one kind of grass for a lawn, provided it is suited to the locality. A mixture of kinds is apt to give a spotted and variegated character, not at all pleasing. Some people like to see white clover growing thickly in a lawn and others object to any thing but green. However, if a good grass rake is employed freely in summer time, the heads of these flowers may be kept from expanding. Where there is a prospect of a month of growing weather, lawns may still be sown with grass seed,—the clover, where used, to be kept for sowing in April or March next. A small quantity of rye should be thinly sown with the grass, which, by the shade it affords will prevent the grass from being thrown out by the frost. The rye must of course, be closely cut in the spring, to allow the grass to get ahead of it.

It is somewhat remarkable, that with the great love of cool shady spots, which our climate excites in all of us, more attention is not given to making bowers of living trees than is customary for us to do. We have "summer houses" in abundance, but these are seldom cool. If they are roofed, the heat radiated from the under surface makes it very hot, unless the sides are open all around; and if the sides are thus open, the sun at all hours except mid-day, trespasses on our enjoyment. Besides this, as a matter of taste, summer houses, as we generally see them, are sadly out of character in relation to their surrounding. In some of our best parks, where there is indeed a great deal more than mere pretension to landscape gardening, the "summer houses," as they are called, too often mar the effect of the whole thing.

The green mass is in keeping with other trees, and the crowding necessary to accomplish the desired shade, can often be turned to the very best account. This is especially the case when weeping trees are employed. The peculiar drooping habit comes into play in numerous ways in the hands of a good landscape gardener. Of the fast growing things of this kind, and where the position is not particularly choice, there are few things more useful than the *Weeping Willow*. For more select places we suppose there is nothing better than the *Weeping Ash*. Indeed, taken all in all, it is one of the best trees of this kind we have. The branches can be trained over wires, and thus we can make the room beneath the tree as extensive as one could wish. For very large spots, a half dozen or so can be used. Set in one circle, and the trees about twenty feet apart. Such an arrangement would make a delightful croquet ground,—or a place for parties or picnics--entirely in the shade, yet with an abundance of room and air all round. The *Kilmarnock Weeping Willow*, if grafted high enough, would make a very pretty shade for one or two persons; but as they generally are, they are not worked over five or six feet high; and thus we have to be satisfied with them as the lovely little ornaments we see on our lawns.

Recently we saw a very pretty thing formed out of half a dozen *Japan Catalpa*—Catalpa Kœmpferi. These seem to grow only from fifteen to twenty feet high, and the branches form a dense mass overhead, appearing in leaf as if the whole surface had been closely sheared. When not too closely confined, the whole stem pushes out leafy branches. A half dozen of these set out by themselves, and trained up to single stems, will make one uniform mass of foliage if left to itself; and gothic arches, or arches of any other form, can be cut between each pair of trees. The leaves around each

tree stem can be left two or three feet wide if desired,—and the whole can be made to have a remarkably unique effect.

The planting season will soon come around, and now is the time to look about and select the desirable kinds, and to decide on the proper places to set them.

It may be well to repeat what we have said in substance before, that the latter end of August is one of the best seasons of the year to transplant evergreens. The young growth of the past season has got pretty well hardened, so as to permit of but very little evaporation,—and the earth being warm, new roots push with great rapidity, and the tree becomes established in the ground before cool autumn winds begin. The chief difficulty is that the soil is usually very dry, which prevents much speed with the operation; and the weather being usually very warm, the trees have to be set again in the ground almost as fast as they are taken up; so that it is not safe to bring them from a distance. It is as well, therefore, to make all ready in anticipation of a rain, when no time may be lost in having the work pushed through. Should a spell of dry weather ensue—which in September and October is very likely—one good watering should be given, sufficient to soak well through the soil and well about the roots. A basin should be made to keep the water from running away from the spot, and to assist its soaking in. After being well watered, the loose soil should be drawn in lightly over the watered soil, which will then aid in preventing the water from drying out soon again.

As soon in the fall as bulbs can be obtained, they should be planted—though this will not generally be the case till October,—but it is as well to bear in mind that the earlier they are planted, the finer they will flower.

Towards the end of the month, and in September, evergreen hedges should receive their last pruning till the next summer. Last spring, and in the summer, when a strong growth required it, the hedge has been severely pruned towards the apex of the cone-like form in which it has been trained, and the base has been suffered to grow any way it pleases Now that, in turn, has come under the shears, so far as to get it into regular shape and form. It will not be forgotten that, to be very successful with evergreen hedges, they ought to have a growth at the base of at least four feet in diameter.

When White Lilies, or any other spring-flowered bulbous plants have done flowering, and the stems died away, they should be taken up and re-set; the disease in Lilies often met with, is probably caused by their being too long in one place.

Most of what is to be done now in this department consists of the routine duties of neatness,—tying up, pegging down, removing faded blossoms, collecting and destroying insects, etc.

Many suffer their flowers to produce seed, but this injures the flowering. If it be particularly desirable to save seed of some things, allow only just as much to ripen as will be needed. In some cases, cutting off the flowers as fast as they fade doubles the season of flowering.

Auriculas, Polyanthus, Pansies, Daisies, and other of these early flowering, half hardy plants, commence their root growth about the end of this month, when the time has arrived for replanting. Good fresh, and yet half decayed sod from a pasture field, is the best to grow them in. Those who have the advantage of pots and frames, can re-pot also at this season.

FRUIT GARDEN.

Another and most bountiful year is highly encouraging to the fruit grower. He must now take care that exhaustion does not follow. The wise orchadist has thinned his fruit at an early stage of growth, and will now be looking round for material to fertilize them with. It is not too late to do it yet to advantage. We should surface dress with manure, compost, or rich materials, any time between now and frost; but the earlier the better. There is not much use in putting it on after the soil is frozen. Rains wash its best portions away. As to kind of manure, it makes little difference. If the surface is not disturbed much, the richer the surface soil the better. We have noticed but little difference between animal manure and mineral. Some of the best and healthiest trees we know, stand near the manure heaps in farm yards.

A little trimming is useful to most trees at this season. The Blackberry and Raspberry may have their tops shortened so as to leave the canes about four feet. Some do this earlier in the season; but the buds are apt to burst if done too soon. In like manner, pear and apple trees that grow well, but produce no fruit, are benefited by having, say half of some of the young growth cut back. The buds then left are very likely to form flower buds, in place of growth buds for next season. Many take out the old shoots of rasp-

berry and blackberry after they have done bearing, and we have in times past recommended it ourselves; but on further observation, we see very little good, if not positive injury. The partial shade the old stems make, seems rather beneficial than otherwise under our hot suns.

VEGETABLE GARDEN.

As soon as your vegetable crops are past kitchen use, clear them out. Never suffer them to seed. In the first place, a seed crop exhausts the soil more than two crops taken off in an edible condition; in the next place, the refuse of the kitchen is likely to produce degenerate stocks. Good seed saving is a special art by itself, always claiming the earliest and best to ensure a perfect stock.

Celery will require earthing up as it grows, to get it to blanch well. It is not well, however, to commence too early, as earthing up tends, in a slight degree, to weaken the growth of the plants. Take care, also, not to let the soil get into the heart in earthing, or the crown is apt to rot.

As fast as Endive is desired for salad, it should be blanched. Matting thrown over is the best for this purpose, as the plants are not so liable to rot as when pots or boards are employed.

In cold or mountainous regions, Melons are hastened in the ripening process, and improved in flavor, by a piece of tile being placed under the fruit.

Keep weeds from your compost heaps, as they exhaust the soil, and bear seeds for future brow-sweatings.

Sow Lettuce for Fall crop, thinly, and in deep and very rich ground.

Early Valentine Beans may still be sown early in the month. The soil for a late crop should be well trenched, or if the fall be dry, they will be stringy and tough.

Cucumbers, Squash, and other similar plants, often suffer from drought at this seaaon. Cold water does not help them much, but a mulching of half-rotten leaves strengthens them considerably.

Cut down straggling herbs, and they will make new heads for next season.

Towards the end of the month, a sowing of Spinach may be made in rich soil, which will come in for use before winter. That desired for winter and early spring use, is usually sown in September in this region. A few Turnips may also be sown for an early crop, but will be hot and stringy unless the soil is very rich.

Corn Salad is often sowed at the end of this month. It does not do so well in damp soil or low situation.

COMMUNICATIONS.

THE PRINCIPLE OF IRRIGATION.

REMARKS OF MR. THOMAS MEEHAN BEFORE THE COLORADO FARMERS CLUB, AT GREELEY, AUGUST, 1871.

At the request of a Western friend, who "thinks it a lucid exposition of the principles of irrigation," we reprint from the *Greeley Tribune* the following report of some crude remarks by the editor of this magazine, at the reception of the agricultural excursionists last year, though we think there is little new which has not been more deliberately told in our pages before:

"In the East some people say that your system of irrigation is a humbug, but it has often been my privilege to defend this system, and to say, as I do to-night, that so far as the very best results are considered, agriculture by irrigation is capable of producing better results than any other. I came here, therefore, rather prejudiced in its favor, and instead of expressing surprise, as some do at your great results, will say you have not yet come up to what the system is capable of, for this system is so excellent that you hold in perfect control all the elements of plant nutrition and growth, these are, namely, heat, air, light and water. In the East we have all these it is true, but unfortunately in our seeding time there is often too much water; corn planting is delayed for weeks by cold rains, and oats, instead of being sown in March, frequently remain out of ground until May, when, if a hot season follow we have but half a crop. In short,

we are famous in the East for mildews, moulds and rusts, and various diseases, most of which is due to too much water in the soil at one time or another during the growth of plants. Here you have light, air and heat as we have, and you have water with the valuable addition of having the water under complete control. You can give the crops the water just as they need it, and cut it off the moment they have had enough; and gentlemen, I am not surprised that you equal us in your agricultural productions. It would be to your shame if you did not, and I shall expect you to excel in what you now show us. Few persons have an idea of the great value of holding well in hand the great powers of nature, and especially this one of water. It has been my fortune to be interested during my life in horticulture as well as agriculture, to work in the garden as well as on the farm, and it is well-known that the garden will, at any time, excel the farm in the value of its productions. In fruit culture for instance, we will build a vinery, and produce grapes under glass far superior to any which the most noted vignerons of this country or Europe can raise in the open air—so of other fruits and vegetables. The peach, pine-apple, cucumbers, or salad—all attest the superiority of this kind of culture over the productions of the field—and why? Chiefly because we have all the conditions of success under complete control, and especially this one of water.

But I would say to you that the common assertion that water is the food of plants, is to be received with some qualification. Water is rather an enemy than a friend, when given as water. We find water in plants, but it is drawn into their system rather in the state of vapor than as water. Indeed it is watery vapor which the roots of plants feed on, and not water. I make bold to say that very few crops, except such as rice, live in water, would stand to have all their roots entirely submerged for twelve hours in water and not suffer. In fact, and it is a curious subject for those interested in philosophy to study, only those plants which need little water in their structure, grow in water. If you cut across a bull-rush, or any other plant, you will find its structure made up of dry pith, or otherwise dry and hollow, while if you take a milkweed, cactus, or other of the weeds which grow about you on these dry hills, and cut them across, you will find the moisture flowing freely. So we come to the conclusion that it is in open, porous soil, aided by the gasses of the atmosphere, that the roots of plants are able to take up, in the state of vapor, the moisture they contain.

You will thus see in your system of irrigation your danger will be that the roots will get too much water. Instead of planting, and then pouring the water on, it will be a wiser policy to prepare the soil deeply to hold moisture in the shape of vapor; introduce the water before planting, then plant after this well prepared soil has become moderately dry.

I have said that the roots of plants suffer if for twelve hours they are entirely submerged in water. This is even more true of trees than of other plants, and perhaps more so of grape vines than of any other woody thing. We find by practical observation that this fruit does best on the driest hills, where the soil is so arid that corn stalks will dry to shavings, here the vine flourishes; and the driest seasons have always proved the best grape years.

But, ladies and gentlemen, I am reminded by this matter of water in the soil, that I have been asked to say a few words to you about evaporation. Of course, you know that all the water taken into a plant's system by the roots does not stay there, but is as rapidly given off into the atmosphere, and that the dryer the atmosphere the more is given off. This evaporation takes place from every portion of the plant, from the branches and the twigs, as well as from the green leaves, and in winter as well as summer. Indeed, it is in proportion to the extent of surface exposed. There is more moisture lost by a tree in winter than in summer. You know how it is, gentlemen, or if not these ladies accustomed to the laundry can tell you that washed linen will dry much faster by a cold dry wind in winter, than under an average summer sun, and you will thus see the great advantage of sheltering your farms and gardens from the scorching effects of wintery winds. But the lateness of the hour admonishes me that I must not continue longer, and with your permission I will now close. [Cries of "Go on; let us hear more."]

The Chair.—We are always patient under instruction.

Mr. Meehan continued: You can, by looking at nature around you see the great value of shelter from winds. While exploring these mountains to the back of you, I find a large variety of rare conifereous trees which we in the East give high prices to possess. I found that wherever these were growing in sheltered valleys, or warm cosy canyons, these noble specimens,

were clothed with foliage from summit to the ground ; but on the hills, exposed to the bleak winds of winter, rich as they were, they seldom reached half the size of those in the other places. But you may say, how can there be evaporation in winter, when the trees are at rest? If the moisture escapes from the branches how is it restored by the roots? Now the roots are collecting moisture all through the winter season. It makes no difference how frozen the soil may be, the little rootlets thaw the hard clod just about them and take up the watery vapor, by their own internal heat, and thus supply the needed material for waste through the branches.

I may, perhaps, offer a few suggestions as to the kind of trees to plant. Everything depends on getting them rapidly down into the sub-soil, where the roots can be away from the drying influences of the atmosphere. Nature offers some hints. Only those plants grow here now which have the power of throwing their roots deeply down. I notice that in the mountains the prevailing deciduous tree is the oak, and the whole oak family are proverbial for the depth of their roots. Your oak is not a large growing tree, but botanically, it is nearly allied to the English oak of Europe, and I am quite sure that this English oak would do remarkably well in this country. It is, moreover, a rapid grower, and I have seen it make five feet in one year. In all you choose I would take, therefore, the deep tap rooted sorts—even in the matter of hedging plants, I would do this. I noticed to-day that you are growing the osage orange, but I should think the honey locust has a much deeper rooting tendency, and would be a better plant for this purpose.

Again, ladies and gentlemen, I would say, you need not stop to defend your irrigating system of agriculture. It is the system which best holds in control the elements of success. Have a care to keep your soil filled, not with water, but with watery vapor, and guard your crops from evaporation by planting shelter belts, and not even these beautiful specimens of cereals and vegetables, which you have on this platform to show us will satisfy you, for you will excel your best expectations."

Judge Hanna moved a vote of thanks to the distinguished excursionists, and he expressed his opinion that their visits, and the favorable opinion they had expressed, would be worth much to the colony. The vote passed unanimously.

WHAT I KNOW ABOUT TURNIPS.

BY DAVID LANDRETH, PHILA.

The value of succulent food, in a hygienic or sanatory view, to man, and also to the animals which minister to his wants, need not be commented on. All who have paid attention to the subject agree in opinion as to its advantage, indeed, absolute necessity, if the preservation of health be properly studied. The long winters of our country which arrest vegetation, and oblige us to provide green food to be stored up in anticipation of the severer season, has necessarily induced inquiry and examination as to the class of vegetables which can be produced in greatest abundance, at least cost, with least exertion, in the shortest space of time, and least liability to failure under unfavorable atmospheric conditions, and also as of primary importance, with a capacity for perservation for months with slight danger of decay.

These qualities appear to be united in a remarkable degree in the Turnip—hence its very general culture; and, as naturally follows, the importance of selecting the varieties which experience has pointed out as better adapted to geographical divisions, and special purposes.

In Great Britain the culture of bulbs, more especially the Turnip (in which we here include the Ruta Baga or "Swede," though not so classed in England), has assumed really gigantic importance ; and it has been estimated by writers on political economy, years ago, when the Turnip product was much below the present, that its annual value was equivalent to the sum represented by the interest on the national debt, —no inconsiderable amount as everybody knows. Until the culture of roots, as they are termed, was extended and enlarged in England, animal food was a luxury seldom within the reach of the operative classes, with whom vegetables and farinaceous compounds, not always of the best quality, were the reliable sources for sustenance. Now, meats in some shape are within reach of all, —the poor factory operative, the industrious mechanic, and the wealthy land-holder, alike participate ; and this change has grown out of, not national prosperity or increased wages,—though both are indirectly affected,—but the greater breadth of land in root-culture, which has so largely, immensely, it may be said, augmented the productive capacity of the acreage under plough,—thus practically bringing food to every working-man's door.

Indian Corn—with us the great meat-producer

which has played so important a part in the civilization of our country, enabling the hardy emigrant from the oldest settlements to wrest the wilderness from the savage, and overcome the forest—is not a product of Great Britain or any portion of the north of Europe; there only being known as an import from our country. In this particular, we have an advantage impossible to estimate; but, great as it is, it should not lessen our exertion to produce *succulent food*, which augments the value of the farinaceous. For many years we have, in our various publications, especially "The Rural Register and Almanac." given expression to our conception of the value of roots as stock food. Our own working stock, at present numbering fifty-six head, and a small herd of Alderneys kept for the family dairy, we aim as regularly to supply with food of that character, whether it be turnips, mangolds, carrots, or beets, as with hay; and we should consider it most unfortunate if untoward events should deprive us of the ability thus to contribute to the health and vigor of our working force, or the secretion of rich milk, and correspondingly rich butter, as high colored in winter as that from grass, and almost as well flavored.

That Turnips, singly and alone, will secure health, and strength, and rich milk we are far from maintaining; but we do contend that, in proper proportion, in suitable condition, at proper times, mixed with corn meal, shorts, oil cake, or other farinaceous food, they will produce invaluable results. To feed roots of any kind in improperly cold stables, or, what may sometimes be seen, in the open air in inclement weather,—the roots, perhaps, partially frozen,—and expect favorable results, argues, to say the least, want of reflection; and where we find people say, as we sometimes do, they "can see no good in roots," we are sure to find, on inquiry, that some of the obviously rational and necessary rules of procedure in feeding had been neglected or disregarded. The experience of such people should never be taken as safe guides; but rather let us pin our faith on the systematic and successful, who use the right means to the right end. One such practical, observing, methodic man in a neighborhood is worth a dozen who make no progress, who pooh-pooh every effort which does not square with their previously conceived opinions,—if, indeed, they have any fixed opinions except of their own wisdom. We have been told that the ocean could not be navigated by steam, that it was certain death to illuminate our cities by gas, and that a transatlantic cable was a chimera of an over-taxed brain. But where do we stand now? So has been the prediction of croakers with respect to steam, as applied to tillage. With what scorn has it been said the thing was wholly impracticable! What is the position of agriculture in that particular to-day? Hundreds upon hundreds of ploughs in gangs of six, running a foot or more in depth, are drawn by steam-power in England, with a celerity most advantageous at a hurried season,—running night as well as day, when necessary to accomplish seeding in due season; and at a cost far below the work of horses. We trust that in another year the lands of Bloomsdale will be ploughed, and harrowed, and rolled, and perhaps further tilled by steam, thus adding to their productiveness, and increasing the requirement for manual labor; for steam does not destroy, but builds up.

Method of preparing the Land for Turnips.

The preparation of the soil is an important pre-requisite to success, both as respects the productiveness of the crop, and its cost, for it is manifest that, however valuable and desirable may be any object we seek, the cost of obtaining may be disproportionate; such is especially the case with the products of the soil. The Agricultural Department of a previous day (we are sure its present head will commit no such blunder) took great credit for the introduction, as it was termed, of the tea-plant from China, though it was in our country fifty years before, and had produced perfect seed. A little reflection might have convinced the Department that, unless we could import the Asiatics also, and they could be content to live on rice, and work for a few "cash" a day, as at home, we had better continue our tea plantations abroad. The fruits of the tropics and Southern Europe we shall successfully cultivate, for we have every climate; but the tea, never.

Some farmers with us of Pennsylvania, when laying out their Corn-ground, attach to it so much land in addition as they propose to crop in Ruta Bagas and Turnips; plough it at the same time as the corn-land, and whenever the crop is harrowed or cultivated, the root-land receives like attention. At first this may seem a waste of labor, but it can be readily perceived the finer tilth such practice is calculated to effect, but especially the economy of labor when the seed is sown. With each previous movement of the soil a new surface was exposed, and with each

the latent seeds of weeds had opportunity to germinate, and were destroyed, thus slaying thousands of formidable enemies of the turnip crop. Now, all this may seem a small matter to some farmers, but we take leave to tell them that, system and method in farming, as in manufactures and other industrial pursuits, will hereafter alone pay; the increasing cost of labor, and all else incidental to the culture of the soil, must make intelligent, methodic field-labor indispensable. Slip-shod tillage will certainly bring men into debt. It is true the process described above cannot be observed under all circumstances, as in the South, where turnips are frequently grown with most sure success within the boundary of the cow-pen, but even there, several ploughings might be given preparatory to the seeding.

In the latitude of Philadelphia, we begin to think of sowing Ruta Bagas about the 10th of July, and if every thing is in readiness, make our first sowing by the middle of the month. The process is thus: Plough the land level, harrow lengthwise and cross-wise, getting it into fine tilth, then draw shallow furrows 2½ feet apart (3 feet is better where there is plenty of room to spare); in these furrows the manure is spread; it may consist of any fertilizing material within reach. Of course decomposed matter is the best, whether it be vegetable or animal; and here, we remark, it is a good plan to prepare in advance a compost, which will readily disintegrate when spread. Where such is not at hand, any of the approved commercial fertilizers may be resorted to, but be sure and buy only from parties of good repute, of which, doubtless, there are maay. We take this opportunity, however, to say, without disparagement to others, that, after a number of years' trial of the product of Baugh & Son, of Philadelphia, and the Northwestern Fertilizing Company of Chicago, that, we feel no disposition to order elsewhere. When the fertilizer (if a super phosphate or other commercial manure, at about equal cost, at the rate of 500 lbs. per acre) has been spread, it is a good practice to remove the hind teeth from an ordinary cultivator so as to adapt it to the width of the furrow, and pass it once over the fertilizer, thus incorporating it with the soil. That done, the soil removed in forming the furrows, and a little more obtained on the opposite side is returned. This process will be found to form a ridge some inches higher than the level of the adjacent land. As it is not desirable in our climate, where heat and drought (rather than excess of moisture, as in England, from whence the practice of ridging is derived) prevails, we back down the ridges until they are nearly level, and which brings the seed about to be sown near the manure, so important to stimulate the young plants. Everything being now ready for sowing, with an Allen's "Planet," or "Holbrook" Drill both of which are made to open the furrow, deposite the seed, close the furrows, and roll in the seed if necessary, we proceed to sow. The drill should be adjusted to sow not less than two pounds of seed per arce, if in drills or rows, 2½ feet apart,—not that so much is necessary, if any considerable per-centage vegetates, and escapes the fly, the scorching sun, and other unfavorable influences. It is probable that if two ounces of seed could be evenly distributed, each grain germinate, and finally succeed, there would be a sufficient number of plants to the acre; but it would be a very unwise procedure to stint the seed to save (for the present moment only) the pocket. The English, to whom we look for instruction in root culture, use much more than two pounds per acre, but the turnip has been so generally grown in their country for generations, that the "fly," fed and pampered, has become a most formidable pest; so much so that great difficulty is sometimes found in securing a "stand."

If the sowing, which we have just described, should by any accident have failed, pass along the ridges a spike-tooth harrow to destroy any weed seed which may have spouted, and re-sow, as before. If, from the time lost, it may be deemed too late to perfect a crop of Ruta Bagas with certainty, it may be better to make the re-sowing with flat turnips, which mature in a shorter season. Supposing the first sowing a success, allow the plants to reach the rough or second leaf, then proceed thus: Taking a light two-inch steel hoe in hand, and standing so as to bring a corner of the hoe in an oblique direction with respect to the line of plants, and near to them, the operator walks backwards, drawing the hoe gently, and lightly skimming the surface of the soil, and with it all young weeds which may have sprung up cotemporary with the crop; returning, the opposite side of the row or drill is taken, thus leaving only a narrow line of turnip plants, nearly free from weeds. After a few days, when they have grown somewhat stronger, and are too rank for the fly to injure seriously, they may be "clumped," which is performed by taking a sharp, light, steel hoe of suit-

able size, say two inches wide, and standing facing the row, cut crosswise, so as to leave clumps of plants at intervals of four or five inches. At first the operator will cut timidly, fearing to destroy too many; but in a little while he will have gained courage, and proceed with increasing speed. It is surprising with what celerity such work may be performed by an *expert*, which any one may become with an hour's practice. We have boys who can pass along a row, cutting as they go, at half the usual walking speed. When the plants left in clumps have fully recovered from the disturbance, which is unavoidable, and again stand erect, the process of "singling" commences; this is simply pulling out with the finger and thumb and casting aside all but the most promising plant in each group or clump.

After the lapse of a few days, when the selected plants have become upright and self-sustaining, a very shallow furrow may be cast from each side,—the earth thus removed meeting in a ridge between the rows If the weather is damp they may stand thus a few days, each day adding greatly to their strength; but if the weather be hot and dry, it is better to proceed at once with the hoeing, which done, the ridge of earth is to be leveled down by a spike-tooth harrow, or, in its absence, a cultivator with well-worn teeth, taking care not to cast the earth upon the young plants. This process of ploughing from the plants, and cultivating immediately after to return the soil, will need to be repeated several times during the season of growth; indeed it may be practiced with great advantage so long as the space between the rows is not obstructed by foliage, on each repetition inserting the plough deeper than before. Thus the crop will at length stand daily increasing in vigor and bulk, until (in the latitude of Philadelphia) 20th November, when it should be placed in winter quarters.

(*To be Continued.*)

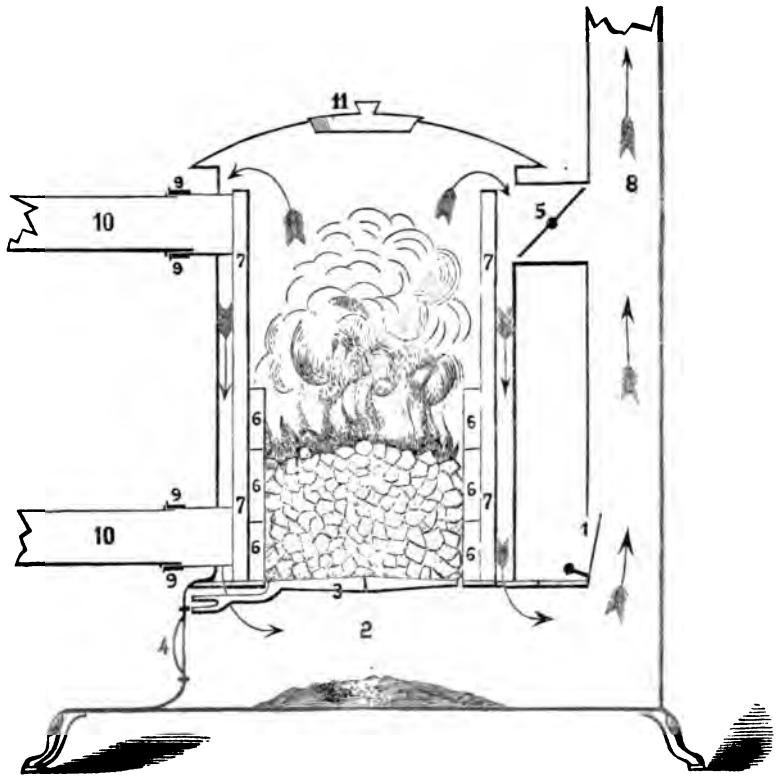
HEATING GLASS-HOUSES.

BY LORING W. PUFFER, NORTH BRIDGEWATER, MASS.

I do not propose in this paper to advance any particular theory as to the circulation of hot-water, but to confine myself to a few facts in my own experience. Many persons are deterred from building greenhouses, because the heating apparatus must be either cumberous or expensive, for it has almost passed into a proverb, that houses less than fifty feet in length, cannot be economically heated by hot-water. Having solved that problem to may satisfaction during the past ten years, I herewith give you the result: The office or parlor stove for anthracite coal of to-day, is an improvement over the old cylinder cast-iron stove, inasmuch as its peculiar construction allows a continuous fire to be kept for months, and when properly adjusted there is a perfect combustion of the coal; consequently no waste, no fires to rebuild, while ten minutes time daily will keep them in satisfactory running condition. This improvement, so far as I know, was introduced by one McGreggor, some 20 years ago, and while very few of these stoves are now in use, the principle involved can be found in nearly all the modern stoves known by the name of McGee, Orient, Base burner, gas burner, and other fanciful names. It consists essentially in a cast-iron cylinder, lined with fire-brick, and surrounded at a distance of two or three inches, with a sheet-iron shell. The heat rising from the cast-iron cylinder to the top is deflected back and down between this and the sheet-iron shell and then finds access to the pipe, what is not radiated by the stove, through the base of the stove, and under and back of the fire to the chimney. The amount of heat lost in the chimney is not probably five per cent. A fire can be kept for forty-eight hours without touching. *That* I have tested. Of course not much heat could be generated, as combustion goes on *very* slowly. But a *good degree* of heat can be maintained for twelve hours. Now having used these stoves for sixteen years, and withal, being a yankee, I could never build a fire in my flue without contrasting the difference. The stove so simple, effectual, and neat in its working. The flue at its best, being unsightly, dirty, and ineffectual to a certain extent, and using more time than I could well afford to spare. About ten or eleven years ago, having a small propagating house to heat, I found a stove that would answer my purpose, and cutting some holes through the shell, inserted a bend of two inch gas-pipe, communicating with a wooden tank. This worked some time quite effectually, but the pipe clogged the fire, and after some thinking, I had patterns made, and a boiler cast, which should take the place of the fire-brick, the size being adapted to the amount of heat required for tank heating. This worked effectually, and to my satisfaction until I sold the house. This was I think, in the spring of 1863. Last fall I concluded that I

would apply the principle in heating my greenhouse, which is eleven feet wide, and thirty-two long. I secured the base and top of a McGee stove, and ordered a cylinder boiler of No. 16 guage, sheet copper, made by a tinman. The boiler is two feet high. sixteen inches outside, and fourteen inches inside diameter. The copper is first riveted, and then soldered. The space between the two shells filled with water is one inch. The boiler is lined with fire-brick one foot high, leaving one foot exposed to the direct action of the fire. Fifty pounds of coal will fill the space to the top of the fire-brick. If filled to the top of the boiler, something over 100 pounds.

The temperature of the house during the night is from 40° to 50°, commonly about 45°, and it *never* fall during the night. On March 5th with the temperature outside at 10° below 0, and a driving wind, with an expenditure of 75 lbs. of coal in the 24 hours, the heat was steady at 45°, not varying one degree, and using but 95 feet of four inch pipe. The house contains 2700 cubic feet, fronts south, and is not protected by other buildings. The boiler cost forty-two dollars. The amount of coal used is from fifty to sixty-five pounds daily. The fire does not go out for weeks, and but for the fact that there is more or less slate with the coal, it could be kept up from



would be required. External and at about an inch distant is a sheet iron shell, with smoke-pipe at its base. The fire is entirely surrounded by water, and the heat, after rising to the top, descends to the base of the boiler, and thence to the smoke-pipe—what has not been radiated. When the boiler is working well, the smoke-pipe will be about blood warm. Some heat is radiated by the sheet iron shell, but by using a covering of felt, that would be mostly retained.

fall until spring. An average of ten minutes per day will keep it working. There is one flow and two return pipes. The *end* of the flow pipe is six inches higher than the top of the boiler. It has always worked to my perfect satisfaction, and although only about one hundred feet of pipe is attached, have no doubt that it would work three hundred fect, but of course, using more coal. I send a rough draught of it; should be pleased to show it to any one. One of Hitchings' boilers

that would do the same work, would cost about one hundred and fifty dollars.

P. S.—I am not a manufacturer of boilers.

1. Damper to admit cold air and check draft.
2. Ash pit.
3. Revolving grate, twelve inches in diameter.
4. Door to ash pit, with slide damper.
5. Damper for direct draft.
6. Fire brick.
7. Boiler.
8. Smoke pipe.
9. Wrought-iron collar on end of copper pipe—ends turned over.
10. Four inch iron pipe.

Top and base cast iron—sheet iron outside.

11. Cover.

The water pipes are to be understood as radiating from the side instead of the front, as shown by this section.

NOTES.

BY MISS A. G., READING, PA.

THE WHITE WATER LILY.

Thinking some flower lovers might like to cultivate this lily if they knew how easily it can be done, I will describe the method I saw practised for several years, by a lady friend. The roots were procured in the lower part of New Jersey. They were kept damp, during the ensuing winter in flower pots. A half barrel was obtained in the spring, and the hoops well secured. It was left in "the rough," except one year, when it was much improved by a coat of green paint. The tub was set on bricks, in the garden, and one-third filled with a mixture of garden earth, sand, and well rotted manure. The roots were set in this, and covered. Water was added, gently, and a little at a time, every day or two, (so as not to disturb the earth), till the tub was filled. The handsome round leaves, four or five inches in diameter, soon appeared, and filled the tub. Water was put in to supply that lost by evaporation, and during the summer several blossoms delighted us with their beauty. When cold weather approached, the water was allowed to dry off, and when nearly gone, the tub with the roots and earth still in it, was placed in the cellar, and watered at long intervals during the winter.

In the spring the roots were separated, and about half of the increase put back into the tub in a fresh mixture of earth. As they were brought out earlier, (about 1st of April), the blossoms were more numerous. These pure white flowers were as perfect as the Camelia, and delightfully fragrant. They close at night, and reopen in the morning. Those blooming in the tub were about two inches in diameter; but those of the ponds are larger. Near Moorestown, New Jersey, there is a very large kind, differing somewhat from these, and said to be the real Egyptian Lotus, brought from the East by a traveler.

THE CALLA.

Having seen a very large Calla, or Egyptain Lily, which bloomed well during the winter, we asked an account of the treatment which made it so flourishing. We learned that the lady who owned it, was in the practice of transplanting all her Callas from the pots to the garden, where they increased rapidly in size. We then tried the experiment of putting out the quite young Callas when the geraniums were bedded. They soon showed growth, and by fall were thrifty, good-sized plants. One of these sent up a bud before Christmas. The ground in which they were placed was somewhat damp, and received only the morning sun.

It is not generally known among amateurs that the Calla sends up two blossoms through the same leaf-stalk; by cutting this too soon the second bloom is lost. They should, under favorable circumstances, throw up six flowers during the winter. Ground from a swamp is specially good for them; also manure that has been scalded often for watering flowers. Stale coffee is said to improve them.

AMARYLLIS.

A lady friend writes, lately, that having the misfortune to break the stem off of one of these before the buds were out of their sheath, she tried the experiment of setting them in a pot of sand. The flowers soon burst the sheath and expanded. This fact might prove valuable where it is desirable to transmit the flowers without the bulb. They would carry thus, in damp cotton, without injury.

One Amaraylis in my possession, which was two years ago put into a twelve inch pot, and not disturbed except to top-dress it, this winter sent up two stems; one of them measured a yard and more to the top of the bud sheath. Each stem bore six flowers, of a rosy salmon pink, with a white stripe down each petal; shaded on the sides with carmine pencilings. It was very fine.

IPOMÆAS.

These beautiful morning glories of the Tropics seem little known. Last summer's unusual heat being favorable to their growth, they made a fine display in the yard and garden. The Ipomæa Grandiflora Superba, a large blue one, with a white border, was lovely. Ipomæa limbata, and

Ipomæa elegantissima, which I think are nearly the same, are very elegant, bearing purple blossoms, with a white star in the centre, and a bluish white border. These, it is said, should be four or five inches in diameter, if in a favorable situation. They are very handsome; but I prefer the I. grandiflora suberba, because it is a luxuriant grower, bearing a profusion of large flowers, and seems less delicate than I. limbata. I had a large pure blue one, a pure blue with a very narrow edge, a white one, (but this was not larger than a common morning glory), and a neighbor, a crimson one with a white edge.

My Ipomæas were much more luxuriant than those of my neighbors, which I attributed to their having been forwarded in boxes or pots, and to growing in rather a damp place, in rich ground. Some of the main stems were nearly an inch thick a foot or two from the ground. After being freely watered, the blossoms increased in size. Manure water was used occasionally, which helped to keep them vigorous. One kind I did not succeed in blooming, but a seed of the same was sent to a friend at Baltimore, which grew luxuriantly and produced white, sweet-scented flowers, five or six inches long, and trumpet or petunia shaped. They, however, bloomed in the evening, remaining open till six o'clock next morning. My friend called it "a beautiful vexatious thing," to hide its beauty in the night.

WINTER PROTECTION.

BY JAMES WEED, MUSCATINE, IOWA.

The cultivator of tender trees, of hardy, or rather half-hardy plants and vegetables, has a vast interest in the extreme vicissitudes of autumn, winter and spring. Artificial means of obviating the disastrous effects of extreme cold, sudden changes, &c., under the general term protection, have been extensively discussed for many years, and "shelter belts," "wind breaks," evergreen hedges, &c, have been the theoretical results.

At a meeting at Rochester some years ago, when the discussion enlisted the best horticultural talent of that far famed emporium of trees, one member preferred board-fences to evergreen hedges; but he did not recognize the fact that a board fence is no protection against extreme cold on a still night, or that it increases the evils resulting from the unseasonable and excessive sun-heat that is liable to occur during the hybernating period of trees and plants "Northern slopes" to prevent trees being started into unseasonable activity, and "shelter belts," with southern exposure, to protect against cold north winds, involve two opposite theories, either of which may be right one time and wrong another.

In the *Rural New Yorker* of March 23d, is the following: "*Uncovering Plants.*—March 4.—The severe cold of the past few days being rather unusual at this season, should be a warning to those who are always in haste to remove the winter protection from plants. Of course it is not advisable to allow the covering of strawberries and other plants to remain until growth has proceeded to any considerable extent, still it should not be removed too early, because we often have a cold snap even after spring weather has actually come. Plants that have been protected during winter, are more sensitive to cold than those unprotected, and it is far better to allow them to remain in their winter dress until the buds are swelled considerably, than to take it off, and then growth checked by cold. After the long, dreary winter, we are inclined to be in haste for summer; but the old adage of 'haste is not always speed,' should be remembered."

How to cover strawberries has been often and fully described; let us see if we properly understand it. Sawdust, though an excellent non-conducting material, is thought by some to harbor troublesome insects. If leaves or corn-stalks are used, they must not be put on so thick as to smother the plants, and they must be thick enough for protection. If put on before any frost is in the ground, there is the greater danger of suffocation; and if the autumn is warm and late there may be no suitable condition of frost before the accession of severe winter weather, when it is difficult to apply the covering; or perchance, the occurrence of frost may be preceded by a heavy fall of snow, when the artificial covering would not only be unneccessary, but positively injurious.

In regard to the proper time to uncover them, the writer of the paragraph above quoted, shows plainly that success or failure may depend on our judgment or prescience,—one man being able to "look about as far into a millstone as another in fortelling climatic changes."

A. uncovers with the first warm days in spring, while *B.* retains the covering and the frost as long as practicable, in anticipation of cold spells; but none occurring. *A.* sells his berries in market perhaps for double what *B.* gets a week later. The next year *B.* uncovers with

A., and severe frost supervening, both loose their crops, and the labor of covering and uncovering. Again, *A.* covers, and *B.* will not incur the expense Snow falling early and remaining on during the winter, and the spring being favorable, *B.* gets a splendid crop without labor, while *A.* with all his extra care and trouble, has his much damaged or destroyed by too much covering. What have these cultivators learned by their experience?

Many years ago zeal and enthusaism placed us in defiance of the elements. *We would grow strawberries regardless of climatic changes or conditions.* We covered with leaves for winter and uncovered with the first warm days in spring, with the resolution to replace them if necessary. A cold afternoon,—thermometer at 50°, when the plants were in full bloom, indicated frost, and we had the leaves placed as carefully as practicable on the beds. The next morning we were disappointed to find the mercury just a little above, instead of below freezing. The following two days and nights threatened frost, but none occurred, and of course, we lost the labor of covering and uncovering; and our plants presented a sorry appearance after having been three days pressed down with the weight of the leaves. If it had frozen and killed the general crop in this vicinity we should undoubtedly have made a good thing of it, and our "good luck" would have passed for downright shrewdness; as it was we concluded that leaves were not just the thing with which to cover strawberries.

Experience and mature deliberation on this subject have convinced us that *board covers* are the only economical, reliable an invariably successful means of protection in all emergencies; inasmuch as they can be applied and removed at pleasure, and afford efficient protection against the extreme cold and changes of winter as well as spring frosts, and also admit of light and ventilation being given whenever required.

SEARCH FOR THE VICTORIA REGIA.

Obidos, Jan. 16.

DEAR MINNIE,—Since my arrival on the Amazon I have inquired in each place and on board of all the steamers, of every one I met, where the *Victoria Regia* could be found. But the answers I received were any thing but satisfactory. Everybody said there was great quantities of them. Some said 'twas not the season, and no one could say with any certainty where they were to be found; only day before yesterday, talking with an old Englishman who has spent forty-three years on the river, I ascertained that in some lakes near here the plant has been seen, and I resolved to find it or get my feet wet in the attempt. So, after much preliminary conversation, I embarked yesterday morning at ten, A. M., in a montaria (*vide* Fletcher,) in company with the Lieutenant of Police and the Notary Public of this town, two Indians to paddle, sardines, bread, cheese, and wine for the inner man, my Spencer rifle for unknown Amazonian monsters, and myself as chief of the party, and started on my search for the *Victoria Regia*, a fine specimen of which now stands before me in an immense china vase. I mention this fact at once, that you may not remain in any cruel suspense as to the result of our expedition.

The day was fine, and the clouds dense (cloudy days are considered fine on the Amazon;) and our Indians sent our canoe swiftly along under the banks of the great river, stopping only once every five minutes to make an immense cigar out of native tobacco and tascui (the inner bark of a tree) which they gravely smoked while they paddled our light canoe.

The land here at Obidos is the highest on the lower Amazon, say thirty to forty feet high, and is composed of Tabatinga clay (which varies in color from a light pink to a deep purple,) and a vermilion sand or earth. The banks, being cut away by the current, expose all their strata to the view, while above our heads they are clad in foliage of the most vivid and tropical green. Parrots and other birds chattered among the trees, seldom showing themselves through the density of the foliage. In the water near the shore grew a bush with leaves much like the acacia, only smaller, and bearing a flower like one of those little worsted balls that ladies make to adorn their hoods, of a deep pink. This plant was so extremly sensitive, that if in passing we touched just the extremity of a bough, every leaf on that limb closed immediately and seemed entirely bare.

We had been told that the lake where the desired flower was to be obtained lay on the land of a certain Sr. Silva; so after a pull of an hour or so we arrived at this house, and landed to inquire; ascended the bank slimy with the rich Amazonian mud; passed under tree like umbrellas, so dense was the foliage, and full of the nests of the Brazilian mocking bird, who chattered, screamed, and whistled at us in all the feath-

ered tongues. As we approached we saw a dozen or so of half-nude Indian and Negro women leaving their occupations, and taking refuge behind the houses. We clapped our hands, invoked a blessing in Brazilian fashion upon the house and its inhabitants; and an old woman, the wife of said Silva, invited us into a room with floor and walls of earth, thatch of palm-leaves, and elegantly furnished with four hammocks, a bow and arrows, and a tin dipper. We accepted her hospitality; and after the customary compliments made the necessary inquiries, and were informed that in their lake the only specimens to be found were of a diminutive kind, much like our own pond-lily. As this was not what we were in search of, we took a drink of muddy water, returned to our canoe, woke up our Indians, and proceeded. 'Twould be a very long story to recount the numerous houses at which we stopped to inquire, and always with the same luck. No one knew; but each one thought that in the next lake, a mile or so further on, we should find some.

We stopped, and examined the Colonia de Obidos, a settlement intended by the Brazilian Government to be a home for retired soldiers, and which has cost some hundred thousand dollars, now falling into ruin and decay, with trees growing in the church, and only a few Indians inhabiting the unroofed houses.

When we were about nine miles from the town the sun suddenly broke out in all its glory and heat, and we were glad to retire under the tolda or canopy of our canoe. Soon after we came to an igarapuy (*vide* Mayne Reid,) into which we entered, and, after proceeding a short distance, encountered some men cutting wood, of whom we again made our customary inquiries; and this time we were told that in a lake only a short distance off the great Mogul had been seen only a few days previously, but, as the creek leading into the lake was very much filled up with grass and weeds, we had better take their boy as a guide and go through the woods, which we accordingly did; and jumping from the canoe the little naked Indian with his bow and arrows took the lead, I with my rifle followed hard after, and the others brought up the rear.

Once in the woods the scene changed; and, instead of the broiling rays of the sun, it was dark, damp, and with a musty smell, resembling the descent from noonday into a cellar. 'Twas the first time I penetrated the woods on the low islands formed of river mud, and the scene was strange indeed. Gigantic trees of fantastic shapes, knotted, gnarled, and twisted; ferns and undergrowth of enormous size, and so dense that with great difficulty we could force our way through them. In the occasional opening, where a tree had been felled and the sun had penetrated, grass with stalks thicker than one's thumb and higher than one's head, and among, around, and over all the lianas twined and twisted, binding all the vegetation together in one mass of cordage; and the whole scene impressed one forcibly and not particularly pleasantly with a sense of alligators, boa-constrictors, and all kinds of creeping and crawling things.

The heat was intense, the air stagnant; clothes seemed insufferable, and my rifle increased in weight with every step; and still the Indian boy pushed on, turning and avoiding the impassable parts as though every inch of the primeval forest was familiar to him.

Once we had to pass a muddy creek, over which extended the half-burnt trunk of a mammoth tree; the boy leaped lightly over, clinging to the trunk with his bare feet like a bird. I paused, looked around, across, below, where I saw the heads and vile little eyes of three alligators gazing hungrily at me out of mud and water in which they were lying, took my rifle in both hands like a balance-pole, and pushed over, expecting every step that my muddy boots would slip, and I should be precipitated into the slime below. I should think we had gone on this way for a mile and a half when the boy said, "There they are;" and, looking ahead, I saw a large open space in the forest, covered with high grass. More eagerly I pushed on, gained the open, forced my way through the high grass to the shore of a small pond, and—EUREKA! The *Victoria Regia* lay before me.

In spite of heat, dirt, and fatigue, I did feel ethusiastic, and gave utterance to some exclamations, which, as nobody present understood, have not been correctly reported, and I spare you the infliction. What I did do, however, was to give the boy a knife, in case of alligators, and send him at once into the pond to cut with care a leaf, and bring it ashore, and then a bud. Flowers there were none open.

Do you remember the Blockade Umbrella I bought just before leaving home? That and my rifle were the only things I had to measure with. I gave the preference to the more peaceful implement; and if you will go to Shute's on Washington Street, and get the length of one of

his Blockade Umbrellas, price five dollars, and then multiply that by three and a half (the length I mean, not the price,) you will have almost the exact diameter of the leaf that lay before me.

I will not attempt to describe it. 'Twould be in vain, and it has already been done; but, in examining the under side of the leaf, I saw at a glance how Paxton took his idea of the Crystal Palace from the structure of this leaf. After admiring sufficiently while the boy scraped the thorns from the stem of the bud (for both flower and leaf are abundantly provided with sharp thorns resembling the thistle,) I took my prize; and we retraced our steps, found our canoe, woke up our Indians, and paddled down stream towards home, which I reached about five, P. M., hot, sunburnt, weary my clothes soaked with perspiration, and hungry as a bear. I gave my bud to one of the girls, who put it in water, and after a refreshing bath sat down to dinner; and, while enjoying it, I heard a report behind me (where the bud was) like that of a gun,—I mean a very small potato pop-gun,—and, lo! the bud had burst and was rapidly opening. In the course of half an hour it was a perfect flower of a pure white like our pond lily, with the centre leaves of a rose color gradually growing deeper till the centre was of a brilliant carmine; and, contrary to expectations, it had a most delicious fragrance, as nearly resembling that of a ripe pine-apple as anything I can compare it to.

In the evening we had a great many visitors, who knew where I had gone, and came round to see what success I had met with. It does not take much to get up an excitement in these small places. I exhibited my flower with some pride, and was told that it was of a very rare kind, but smaller than the others. There are, as near as I can ascertain, three kinds. 1, yellow with black centre, common and very large. 2, rose colored, common and but little smaller; and 3, the white with red centre, which is like mine. I find they do not keep long. Mine this morning had lost the purity of its white leaves, and now exhibits quite a withered and dilapidated appearance; but, as it dries, red veins are making their appearance in the white leaves so that it looks like a Spitzenburg apple.

The size of mine when fully open was just about as large round as a *large* dinner-plate, and the stem the thickness of my thumb.—*Correspondence of Old and New.*

EDITORIAL NOTES.

FOREIGN.

Centaurea ragusina. Notwithstanding the introduction of so many silvery Centaurias, and other plants of similar character, this species is perhaps the most popular for use in ribbon gardening, and for the contrast of color in massing flowers. It is rather difficult of propagation, and hence keeps always within the demand. We notice that advertisements for it often appears in the English papers.

It is worthy of note that our cousins, when they get wrong in a plant's name, generally stick to their error. This plant they still call *C. candidissima*, although it is a very different plant, coming from a different country. *C. ragusina* is a native of Austria.

Celine Forestier Rose. We never knew why this beautiful Noisetto Rose is not more popular in America. In Europe they advertise it in immense quantities, as one of the specialties of the rose trade.

Adiantum Farleyense. This beautiful fern testifies to its popularity by the high price it maintains. In England they are considered cheap at three dollars each. Here we believe they bring about five dollars.

Prices of Grape Vines in Europe. By an advertisement of a nurseryman of Oldenburg, in Hungary, we note that grape vines two years old, are advertised at fifty dollars per thousand.

Monstrous Vegetables. We could never see the propriety of awarding premiums to vegetables merely because they were of monstrous size. We note that the practice is already being "honored in the breach." At a recent meeting of the Royal Horticultural Society, of England, some one "sent stalks of a seedling Rhubarb of immense size," but the committee reported that they were "too large to receive any award."

THE ROSE SLUG.

BY EDWARD H BEEBE, GALENA, ILLS.

In *Gardener's Monthly* "Hints for June," you say: "The rose slug is often very injurious to the leaves, completely *skeletoning them*. All kinds of rapid remedies have been prepared—whale-oil, soap, petroleum, &c., but the best thing of all is to set a boy to crush them by finger and thumb."

To-day, June 8th, we find a few very small rose slugs upon the leaves of our rose bushes, and shall, this evening, proceed to apply a rapid remedy, which we have, after four years trial, found to be effectual in their destruction. The

rose slug is a night feeder, frequenting the upper side of the leaf late in the evening, all night and early in the morning to feed It does not *skeletonize the leaf*, eating only the epidermis of the upper side, leaving the under side untouched, where it can be found during the day. On cloudy days, many may be seen on the upper side, but on examination, by far the largest number will be seen on the under side of the leaf.

Now for our remedy. Late in the evening we take a watering pot and sprinkle the rose bush throughly with clean water; then dust the bush with flowers of sulphur, throwing the largest quantity on the leaves nearest the lower limbs. Two or three days after the first application of the sulphur, we examine the bushes, and if any slugs are found, apply the sulphur to the part of the bush where they are Should the sun be shining brightly for a few days after the application of the sulphur, there will be quite a perceptible odor of it. But odor and slug will pass off and the foliage be uninjured. This is *somebody's remedy*, suggested to us, we have forgotten by whom, but we have found it effectual, and ask space in your columns to pass it round. We are, and have been a reader of the *Gardener's Monthly*, (from No. 1, Vol. 1), sometimes, but not always a "careless one." The editorials we generally scan closely, and have found information and pleasure in doing so. An old-fashioned man, we like old things, and heartily agree to all you say on page 117, in relation to the novelty in *Norway Spruces*. Our only one, twenty feet in height, is full of "beautiful crimson buds" and although we have a few flowers in bloom scattered around, the Norway Spruce is "fairest of them all." Being, as we said before, old readers of the *Monthly*, we see that the d——l, (printers) or some of his imps are after *you*. You are *made* to say, it "has male and female flowers on separate plants," (instead of seperate *on the same plant*) H. G—— might have written the quotation, but T. M——never. [We must give the—— his due. 'Twas our blunder, not his.—ED.]

EDITORIAL.

THE CONNECTION OF FOOD WITH VITALITY.

The past remarkable winter ought not to pass into mere history without our learning more from it than most of us have done. In other sciences, the rare incidents are eagerly looked forward to, as furnishing the best materials for the advancement of knowledge. Thus eclipses, and the various conjunctions of the stars, never occur but humanity is the gainer; and even terrible eruption of volcanoes or earthquakes, with all the evils that follow in their train, also serve to furnish man with new facts which make him more secure against these and other dangers. There is no better evidence that horticulture is not the science it should be, than its failure to profit by remarkable events as a true science should do.

However, if we have not the scientific students we might have, there are some facts in the past winter's experience so clear, that we may not ignore them. We have in former articles shown how it was drouth and not the absolute degree of frost which injured plants. That it was not frost, was indeed plain; for every one knows that we have had much more severe frosts without anything near the same bad results following. But there are some cases which do not seem to accord with a drouth theory. Two trees, for instance stand together in the same soil; they are of the same age, and one would suppose drouth should bear equally on them. But one is taken and the other left.

After all it is not altogether a question of moisture in every case. Thirst kills animals, but hunger has also a fatal effect; and while there is no doubt that the immediate cause of death in trees last winter was a loss of moisture more rapidly than the roots were able to supply, yet it is clear that the ability to furnish moisture under these unfavorable circumstances, in a great measure depended on the richness of the soil in which the plants are growing, or the vital condition of the plant, as regards its power to make use of its advantages.

There have been some interesting cases proving this point, in regard to mere moisture. The writer saw in the spring, a small hedge of the new Pyracantha. The demand for cuttings was

pretty heavy last fall, and the most of the hedge was severely pruned, a small portion of the hedge only remaining untouched. This small portion, in common with many other wholly hardy things, was severely injured, but the trimmed portion did not lose a bud, but pushed out new shoots from every one. There can not possibly be any other explanation here than that in the last case there were not near as many evaporating points through which to carry off the moisture.

In regard to vitality also, there was met with a very interesting incident. Early in the season of 1872, it was decided to transplant every other one of some twenty inch Norway Spruces; but through pressure of other work, this could not be done until the middle of June. These transplanted plants grew well and apparently remained in perfect health; as much so as the untransplanted ones alongside of them. But in spring all of these were terribly injured, the others not in the least. The plants were in every respect the same, except the shock to vitality, which always takes place at transplanting.

In regard to the matter of food. There is scarcely an instance in this vicinity where American arborvitæs, hemlocks, Norway spruces, or firs of any kind, standing where the concentrated wind could whistle round a north-east corner, that the plants were not utterly destroyed. But we have seen several instances where arborvitæs have been used as screens for dung yards, or other places where the soil was extra rich, and these in the direct way of the keenest of cold currents, without any injury whatever; and always it has been the trees in the poorest soils, which all other things being equal, have suffered most.

We will not here multiply instances, but give at once the conclusions arrived at after a very careful study of many apparently contradictory facts furnished by the past winter:

Trees are killed by evaporation in winter time in precisely the same way as they dry out in summer.

Trees, or parts of trees, lose their moisture in the winter time in proportion as their vitality may have been injured by previous circumstances.

Trees which have the best opportunities to get all the food they require, are hardier than those which have but a limited supply.

BERNARD McMAHON.

A friend regretfully observes that "our countrymen have no heart. Nothing is sacred. While the English venerate ancient landmarks, Americans destroy everything that does not pay." We are not sure that this is altogether true. The writer has a dim recollection of a curious boy, whose investigations in old cellars near an English graveyard, discovered heaps of human bones, which occasionally went to the mill to make "dust" to fertilize the English turnip crop. True, as a rule, old ruins or other relics of the past, remain longer there than with us; but perhaps this is because they are not worth so much. It is a cheap species of veneration. The land on which a ruin stands is worth little more now than when the builder first embodied the architect's designs; while with us land increases in value faster than the houses on them depreciate by age. It is a great sacrifice in us to preserve the relics of the past. Our cousins can take care of theirs and still have enough and to spare.

Again circumstances will excuse a lack of feeling. The man who has distinguished ancestors, or who is connected with distinguished events, is naturally proud, while those who have nothing to boast of, as naturally despise or disregard them. In Europe, most people are more or less connected with the past, and thus a public sentiment for the past prevails. Few of us here have anything behind to speak of. While as a people they are feeding on the past, we are laying up for the future. It is not that we have less heart than they; but that we devote that heart to building up, rather than in glorying in what we have already done.

Yet it will not harm us to look back on those who have gone before us, and to whose labors we owe much of the pleasures we now enjoy. We cannot see the direct evidences of their hands pass away without regret; and though we have no fault to find with the heartlessness of our people as the friend at our elbow does, we would oftentimes stay the "hand of progress" if it were in our power.

Here we are now on the cars of the Philadelphia and Reading R. R., for Germantown, at the Broad street crossing; and here on the right is the quaint old residence of Bernard McMahon, who, if John Bartram, his cotemporary, is America's first great botanist, is our first grand horticulturist—the earliest Adam of us all. His bones rested in one corner of the garden spot he loved so well. And he bequethed a whole acre of land to his heirs to hold forever, as a burial

place for them, and the stranger who as a stranger, might die in a strange land. That it should not be neglected, he enjoined that for any such disregard of his will, a penalty should be paid to a leading charity of Philadelphia out of his estate. But misfortunes fell on the family. The land bequeathed to them had to be sold; and in order to sell it, the law allowed a sum of money to be paid to condone once and for all for the neglect of the graveyard. Recently even the bones of our friend have been taken from their resting place, and sent elsewhere; little of the garden remains but an occasional western oak, a few cypress trees, and some of the original osage oranges of Lewis and Clarke's expedition; while here and there on the new streets cut through, are modern dwellings, which seem only to make the old house look more lonely, and almost ask to be allowed to follow the bones of its former owner to distant lands. And yet we cannot suffer the cars to waft us by before we strain our eyes to aid our imagination, as we see the many distinguished men, to whom this building was in a measure, an open house. McMahon himself, was an Irish gentleman of means, but Lord Charlemont's rebellion against the English government made him an exile. Horticulture, in his old home a taste, furnished him a living here; and his garden and seed store not only became among the first of great horticultural centres on this continent, but the headquarters, in a certain sense, of some of the leading characters of the day. Nuttall, a sort of homeless naturalist, when not sleeping under the bones of the mastodon at the Academy of Natural Sciences, or exploring among the then really wild Indians of the far West, seems to have been either at Bartram's, Morris's, Wister's, or McMahon's. He named the Mahonia in honor of his friend. An exile from the vengeance of an outraged monarchy, McMahon naturally drew to his hospitable mansion, the leading republicans of our own land. Jefferson, and the eminent men of his period, were the regular visitors of Mr. McMahon, and no doubt many of the thoughts which animated our ancestors to their noble deeds, were conceived in these now forsaken walls. The house will soon pass away, but McMahon's *Gardener's Calendar* will long remain a monument to his memory. The circumstances attendant on his taking up with horticulture, of course prevented an early and practical acquaintance with the art; and one might wonder how so complete a work could have originated with him. But it is easy to see that the plan of the work is that of Abercrombie's English "Gardener," and that the real merit of McMahon is the adaptation of this great book to American readers.

It is remarkable that of so many leading men in the various departments of American history, not only their houses and lands, but also their descendants should soon disappear. A grand-daughter of Mr. McMahon's—Mrs. Duke, yet remains, now in the employ of the Department of Agriculture, at Washington, a lady who inherits the floral tastes of her great ancestor, and whose engagement by the department, does justice to their discrimination in putting the right people in the right places—a matter they do not always get credit for, especially as it is too often the case that outside pressure compels them to do just the reverse.

There is yet a matter of public interest connected with McMahon, worthy of note. In an out of the way loft in Philadelphia, are four busts—Muhlenberg, Linnæus, John Bartram, and McMahon, made by Rush, from life we believe, and the last two, the only likenesses extant, so far as known. They could probably be purchased; and surely among our Horticultural, Historical, Philosophical, or Scientific societies, there is interest enough attached to these great names to make these busts worth securing.

CUCUMBERS.

If to be cool as a cucumber is not a poetical fiction, it must have been a pleasant thing to be a cucumber during the late "hot spell." At any rate it was a pleasant thing to eat them—at least so thought that very numerous class which does not follow the recipe given by Mr. Buist in his work on gardening, to oil, pepper, and so forth, and then throw out of the window. There are, no doubt, a few who fail to appreciate the regret with which the Israelites, during their weary wanderings over the hot plains, looked back on the cool cucumbers of Egypt—and there are plenty of Americans who at this season, would prefer them to any of the "flesh pots" with which the aforesaid broken-hearted Jews coupled them. To these at least, any new fact in cucumber culture will be acceptable.

Wherever we go we see the cucumber in the open air suffered to run on the ground. This is, no doubt, a relic of European culture. There it is necessary. The climate is not hot enough, and the plants have to be started, if not grown altogether in low, flat glass frames. But where the

cucumber grows wild, it spreads over bushes and trees, and the growth and product is enormous. All plants with tendrils prefer to ramble in this way. The grape vine, it is well known, seems fairly to rejoice when it can find a large mass of twiggy brush to ramble over as it wills; and so does the cucumber. No one who has not tried, can have any idea of the luxurious growth of a cucumber when trained to a stake which has a set of stubby side branches left along its length. Some which the writer saw, might be taken at a distance for some vigorous kind of ornamental gourd—and the crop was enormous.

A great advantage in this style of culture is, that the plants occupy far less ground than when permitted to spread over the surface in the usual way. This is a great gain to small gardens—and to large ones for that matter, for if we have land enough and to spare, few of us have time to waste in preparing more of it than is necessary to the perfection of a crop.

EDITORIAL NOTES.

DOMESTIC.

Grass growing through a Potato. A year or so ago, Mr. Meehan exhibited to the Academy of Natural Sciences, in Philadelphia, potatoes and other plants, through which roots had penetrated, and illustrated by them the great power of the direct growth of plants. The following from the Chester, South Carolina, *Reporter*, illustrates the same point:

"Mr. John Albright, Sr., handed us on Monday, an Irish potato, through which a blade of grass had made its way. Query: Did the grass grow through the potato, or did the potato grow around the grass? So far the doctors have differed in solving this matter."

Personal Journalism. The Western papers do up the business finely by having hosts of Editors for various departments. One of them at the present time exhibits the peculiar spectacle of a fierce controversy between the Agricultural and Horticultural Editors. It seems to us that where each department is so individually conducted, the editorial "we" ought to be dropped, and "I" take its proper place in this class of journalism.

Darlingtonia Californica. We are indebted to the Bulletin of the Torrey Botanical Club, for a correction of our statement that Mr. Taplin is the first to flower this plant. Prof. Thurber flowered it in 1870; Mr. Bower and a lady friend of Dr. Torrey, flowered it a year or more ago. We remember that Dr. Torrey wrote in regard to the confirmation of his characters as doubted by DeCandolle, but were under the impression that it was from fresh specimens received from California.

Another Rail Road to the Pacific. The Atchison, Topeka and Santa Fe R. R. has been completed to the State line, and, says the *Hutchinson News*, will soon make a complete route to the Pacific.

Packing Fruit for Examination. A box of Pears reached us for examination recently, a mere rotten mass. We have often had such things before, which in consequence of their not being paid at all, or merely marked *paid*, (when the express usually declares it was only part paid), we have had the doubly disagreeable duty of paying for as well as throwing away; but here was evidently a lot of nice fruit, marked "paid *through* six shillings," also to go the way of so many others—and we felt very sorry. They were simply wrapped in paper. One had decayed, and the moisture communicating to the paper, soon saturated the whole.

A pear should be put in clean paper and then laid in dry moss. An inch at least of thickness of moss should be between each pear, and after the pears are all in, then the box filled tightly with moss. If one decay, then the moisture is quietly absorbed by the dry moss, and the others are not affected. Besides the moss gives an elasticity—breaks the shock of the blows of the baggage smashers, who seldom deliver a box without first "knocking spots" out of it.

The Western Pomologist and Gardener has been discontinued. Its Editor, Mr. Miller, joins Mr. Williams in editing the *Horticulturist*.

A proposed Botanic Garden in New York. The *Horticulturist* tells us $55,000 and four lots on Madison avenue, in New York city, have been secured towards the establishment of a Botanic Garden.

Premiums at Exhibitions. Generally premiums are mere burlesques "for the best" and so —"one dollar." About on a par with the age where a fat goose was sold for "two-pence." Kansas seems to be setting a better example. An exchange says:

We call the special attention of our readers to the following item in the list of premiums of the Kansas State Board of Agriculture for the eighth annual exhibition, to be held at Topeka, September 16-20. 1872: Horticultural and Floral Department—S. T. Kelsey and J. K. Hudson, superintendents. Fruit—for the greatest and best display of fruit by any State, county, township, society, or individual, $100.

SCRAPS AND QUERIES.

FLOWERING PLANTS FOR MAY.—Plants in bloom at Rhosynmynydd, the suburban residence of J. P. Jones, Esq , Blockley, West Philadelphia, Penna.

GREENHOUSE.

Abutilon	vexillarium, Chinese bell
Aloe	pseudo Africana
Alstroemaeria	peregrina
Amaryllis	striata, Daffodil Lily
	toxicaria
Asclepias	currassavica, Swallow-wort
Bignonia	jasminioides, Trumpet-flower
Calceolaria	Youngii, Ladies' Pocket
Cerrissa	fœtida, fl. pl.
Cineraria	Kingii, Ragwort
Cobea	scandens
Eupatorium	elegans, White Mist
Ipomæ	Learii, Morning-glory
Linaria	cymbalaria, Kenilworth Ivy
Oxalis	floribunda rosea, Wood sorrel
	alba
Passiflora	Decaisneana, Passion-flower
	intermedia
Pelargonium	Hederæfolium, Ivy-leaved
	variegata
Pentas	carnea
Ruellia	formosa
Rhyncospermum	jasminoides
Saxifraga	sarmentosa, Saxifrage
Salvia	rosea, Sage
Tropæolum	majus, fl. pl., Indian cress

HARDY HERBACEOUS AND ALPINE PLANTS IN THE BORDERS.

Anemone	coronaria, Wind-flower
Aquilegia	Canadensis, Wild Columbine
	coerulea
	vulgaris, fl. pl., Double flower'd
Arabis	alpina, Wall cress
	variegata
Aubretia	purpurea
Bellis	perrennis, Daisy
	flore pleno
Centaurea	montana, Centaury
	Cyanus, Blue Bottle
	Cineraria
	argusina [weed
Cerastium	Biebersteini, Mouse-ear Chick-
Cheiranthus	Cheiri, Wall-flower
	flora pleno
	lilacina simplex
Claytonia	Virginica, Spring Beauty
Clematis	erecta, Virgins' Bower
Convallaria	majalis, Lily of the Valley
Corydalis	aurea, Corydalis
	glauca
Dianthus	caesius, Mountain Pink
	barbatus, Sweet William
	plumarius, Pink, (garden)
Dictamnus	albus, Fraxinella
Dicentra	eximia, Dutchman's breeches
Dielytra	spectabilis, Bleeding Heart
Dodecatheon	Meadia, Cowslip, (American)
Ficaria,	ranunculoides, fl. pl., Pilewort
Fritillaria	Imperialis, Crown Imperial
Helleborus	niger, Hellebore
	Olympicus
Hemerocallis	disticha, Day Lily
	flava
Hesperis	matronalis, fl. pl., Rocket
Hepatica	triloba, Liverwort
Houstonia	coerulea, Bluets
Hydrastis	Canadensis, Orange root
Hydrophyllum	Virginicum, Water leaf
Iris	dichotoma, Flower de luce
	flava
	mathioli
	pallida coerulea
	plicata azurea
	sambucina
	Siberica
	Smithii
	superba
	versicolor
	Virginica
	Germanica candidi
	indigo
	La Seduisank
	Sappho
	variegata major
Lamium	maculatum, Dead Nettle
Lilium	pyrenaicum, Turk's Cap Lily
Lunaria	biennis, Honesty
Lychnis	diurna, fl. pl., Lychnis
Myosotis	arvensis, Forget-me-not
Narcissus	alba fl. pl., Narciss, (Roman)
	incomparabilis
	poeticus
Pæonia	moutan, fl. pl., Pæony
	papaveracea
	Officinalis
	carnescens
	rubra
	tenuifolia

Phlox	Drummondii
	subulata, Moss, Pink
Polemonium	coeruleum, Greek Valerian
Potentilla	aurea, Cinquefoil
Primula	vulgaris, alba pleno, Primrose
	lilicina pleno, lilac,(double)
	rubra pleno, red, "
	Sulppurea pleno, yellow "
	cortusoides
	Japonica
	stricta
	veris, Cowslip [of France
Ranunculus	aconitifolius, fl. pl., Fair maid
	Asiaticus, "
	acris, " Buttercups
	repens, " Crow foot
Sanguinaria	Canadensis, Blood root
Saxifraga	Virginiensis, Saxifrage, early
	umbrosa, London Pride
Silene	viscosa, fl. pl., Catchfly
Thalictrum	anemoneoides, Rue-leaved Anemone
Tiarella	cordifolia, Mitre-wort, (false)
Trillium	cernuum, Nightshade, (three-leaved
Tradescantia	Virginica alba, Spider lily
	coerulea
Tulipa	gesneriana, Tulip
Uvularia	perfoliata, Bell-wort
Valeriana	Phu, valerian or summer Heliotrope
Vinca	herbacea, Periwinkle
Viola	Canadensis alba, Violet

EVERGREEN TREES AND SHRUBS.

Akebia	quinata
Andromeda	pulverulenta
Aucuba	Japonica variegata
Cephalotaxus	Fortunii, mascula
Daphne	pontica, Spurge laurel
Eleagnus	hortensis, Oeaster, (silvery)
Ilex	Aquifolium, Holly,(English)
	opaca, " (American)
Kalmia	latifolia, Sheep laurel
Mahonia	Aquifolium, Berberry
Rhododendron	Catawbiense, Rose-bay
	Cunninghamii
	ponticum
	punctatum

DECIDUOUS TREES AND SHRUBS

Aristolochia	Sipho, Dutchman's Pipe
Azalea	pontica
	nudiflora alba, Honeysuckle
	rosea
Calycanthus	Floridus, Sweet Shrub
Caragana	grandiflora, Siberian Pea tree
Celastrus	scandens, Staff tree
Cercis	Canadensis, Red-bud
Chionanthus	Virginiana, Fringe tree
Clematis	grandiflora azurea, Virgin's
	Helena [Bower
	Sophia
Cornus	Florida, Dogwood
Craetagus	oxyacantha, Hawthorn
	rubra pleno
	albus
Cydonia	Japonica, Japan Quince
	rosea
Deutzia	gracilis
Glycine	sinensis, Kidney bean tree
Halesia	diptera, Snowdrop tree
Magnolia	glauca, Swamp laurel
	Thompsoniana
	macrophylla
	purpurea
	gracilis
	umbrella
Malus	baccata, Siberian Crab
Paulownia	imperialis, Foxglove tree
Philadelphus	coronarius, Mock Orange
Prunus	Japonica, alba pleno, Flowering Almond
	rosea pleno
Pyrus	coronaria, American crabapple
Quercus	ilex, Holly Oak
Rhamnus	lanceolatus, Buckthorn
Robinia	Pseudacacia, Black locust tree
Spartium	scoparium broom, (common)
Spiraeæ	crenata
	prunifolia, fl. pl., bridal wreath
	Reevesii, "
Staphylea	trifolia, Bladder Nut
Symphoricarpus,	racemosus, Snow-berry
	vulgaris, St. Peter's wort
Syringa	vulgaris, lilac
	alba
	Persica, lilac, (Persian)
	alba [Elm
Ulmus	campestris pendula, weeping
Viburnum	Opulus, Snowball tree
	prunifolium, Black Haw
Vinca	minor, aurea variegata, Peri-
Weigelia	amabilis alba (winkle
	variegata
	rosea

BIRDS.

The brown Thrush, (Orpheus rufus), Baltimore Oriole, (Icterus Baltimorus), and white throated Finch, (Fringilla Pennsylvanica), ap-

peared in the first week of this month. The Humming bird, (Trochilus Colubus). Chipping Sparrow, (Emberiza socialis), and Tawny Thrush, (Turdus Wilsonii), in the second week. The Cow bird, (Malothrus pecoris), or American Cuckoo's hoarse note was heard at intervals in the last week.

PRICE-LISTS OF HORTICULTURAL BUILDINGS. Not knowing any one who makes a business of keeping on hand plans and estimates, we give the following letter entire:

Toronto, July 7th, 1872.

Mr. Meehan,

Sir:—Could you inform me to what Horticultural Builder I could apply for a drawing of various ranges of glass for gardens, and both a descriptive and price-list, including heating apparatus, and you will much oblige

Yours respectfully, T. MCPHERSON,
for John Shedden, Esq.,
Scot Street, Toronto, Canada.

CLEMATIS VIORNA.—*N. O., Dayton, Ohio*, says of this plant: "Last year I found on my place in a strawberry bed, a Clematis, and intended, but forgot to take it up. About a month since in going over the same patch, found my vine full of buds; took it up at once, and brought it to the house. It grew nicely, as if it had not been disturbed. Every one admires it as it hangs full of buds of all stages of maturity. It is a beautiful strong growing vine, and blooms long—two months at least. I have shown it to a number of our florists; no one has ever seen it. Mr. Beck, whom you no doubt know, advised me to send you what you find within this box, and ask you to please write what you know about it, and if new, what you think of it.

Strawberries about over—not a full crop. Will have plenty of Raspberries, and Blackberries. Grapes promise well; so do Pears and Peaches. Apples and Quinces a half crop."

THE CLASSES OF ROSES.—

New York, April 18th, 1872,

Dear Mr. Monthly:

In looking over a catalogue, I find that I don't know anything about roses. Please explain the following: Standard, Dwarf, Hybrid, Tea, Noisette, Bourbon, Monthly, Hybrid Perpetual, Moss; also, which do you recommend for pots in the window, and oblige your constant reader,

E. M.

[Standard and Dwarf roses are made so by budding or grafting on a common kind. In England the Eglantine or Dog rose of the woods is used for this purpose. The Standards are budded about five feet from the ground, on the straight wild rose stems, and they then make heads about that high from the ground. In this part of the country they have not generally been found to thrive very well, though we have seen isolated cases of their having done so. If they do well for two or three years, they usually do always after. This fact has led some to grow them a year in large pots before planting out, and good results have followed. Of course only the very hardy classes can be grown this way. Dwarfs are grafted about a foot from the ground; but they require continual looking after, or the sprouts from the wild stock will come up thick, and rob the grafted plant of its support. They must be taken off as they appear.

These "classes" are simply made so by grafting. The others represent distinct races of roses. *Hybrids*, that is Hybrid China, comprise the class of what is known as "June roses." They are of the large cabbage class, and flower "only once a year." Hybrid perpetuals, or as the French call them, Remontantes, are just like these, only that they are *supposed* to flower continuously. They remain rather longer in blossom than the mere June roses, and if the flowers are cut off as soon as the petals fade, a new growth will come out, which will produce flowers again in the fall. It is the most popular class of roses, being entirely hardy, though they sorely try the patience of the unsophisticated, who purchase them from the florists as hardy *ever-blooming* roses, of which, in fact, north of the Potomac, there is none. Hybrid perpetuals may almost always be easily distinguished from Hybrid China by their having a pear-shaped, instead of a globose *receptacle*, as the swollen part of the stem next underneath the flower, and which ultimately becomes the seed pod, is called. The Moss roses are just the same as the others in every respect, except that glandular hairs, or rather enlarged bristles, looking like moss are produced from the sepals or outer envelopes of the flower.

The Bourbon rose is an ever-blooming class, tolerably hardy, with small round receptacles to the flowers, and usually short calyx divisions or sepals. They are usually high colored. The Hermosa is a type of what a Bourbon ought to

be. Usually the foliage is broad, glossy, and deeply and sharply saw-edged, (serrated). They are among the showiest of roses, but are nearly destitute of fragrance. But the Bourbon is a rose as well as those by any other name, though it does not smell as sweet.

The Noisette is much like the Bourbon in some respects; but it seldom blooms well out of last year's wood, but delights in sending out strong growths which are crowned by clusters of flowers. The consequence is that a true Noisette is never in its best period of beauty until towards the end of summer. The flowers, like the Bourbons, are not particularly famous for their fragrance, but on the other hand, they generally favor light colors. Tea roses are also generally of light colors, and delightfully fragrant. The calyx sepals are usually long and tapering, and the receptacle large and of a waxy texture. They usually bear their flowers singly, or at best in but small clusters. They are usually the most continuous flowers, but are the most impatient of cold and damp of any.

Besides those named by our correspondent are China roses, which are something between a Noisette and a Bourbon, and of which the common Pink Daily, the rose which gives such a charm to English cottage life, is an illustration.

For window culture the China is the best, then the Bourbon, and with care, the Teas do pretty well.

PHILADELPHUS GORDONIANUS.—*H. M. C., Waterloo, Iowa, June 29th*, writes about this: "Please name this shrub, and greatly oblige. It is in dispute Its flowering season is just over. Was in full bloom ten days ago."

APPLE BORER.—Some Western correspondent, whose name and letter we have mislaid, sends us a beetle, a curculionidæ. Its name is Ithycerus curculionides, or by some, Ithycerus noveboracensis. A very full and very good account may be found on page 57 of the *Third Annual Report of Noxious, Beneficial and other insects of Missouri*, by Chas. V. Riley."

FRUIT PROSPECTS NEAR CLEVELAND, OHIO.—*J. J. H., Painesville, O., June 28th*, writes: "Fruit prospects for this section were never better. Cherries are abundant, and better in quality than they have been for many years. Peach trees are already bending with the weight of their fruit. This is the fifth consecutive year that we have had peaches. The prospect is equally good for Pears and Apples. There will be also an abundance of small fruits. The currant worm made its appearance in this section last year, and holds his ground with a great deal of tenacity. The Colorado potato bug has also made us a visit this season for the first time, without any special invitation. We shall treat him as an intruder."

NAMES OF CALADIUMS.—*E. T., Wilmington, Del.*, says: "What is the best authority on 'Caladiums?' There is so much confusion with their names that I have undertaken the almost hopeless task of straightening them up. I have three (distinct) 'Mirabile,' and three others (identical) under different names. Can you help me?"

[Caladiums have been so hybridized and cross hybridized, that it is almost impossible to describe the numerous varieties in words, so as to enable any one to fix the name of any one in his collection positively. They are now like Roses, Dahlias, and other plants. By getting the descriptive catalogues of the original senders out of the kinds, and comparing the kinds on hand with their descriptions, we can generally tell whether we have the wrong kind if we are not sure about the right, and this much is a gain.]

POMOLOGICAL SOCIETY'S PROCEEDINGS.—PEAR BLIGHT.—CUTTING BACK ASPARAGUS.—*Mr. F. R. Elliott*, writes: "I have just received the '*Monthly*' for July, and note your remarks on *American Pomological Society's Report of Transactions*, 1871. Permit me to say that in your remarks on my foot notes, so far as they are out of place, and belong not to any power of mine as Secretary, you are perfectly correct, and I hesitate not to acknowledge the correction in regard to my error in such appending, but I do not acknowledge any error as regards the truth of the remark. Your own good sense and intelligence has told you and you acknowledge the item, that 'pomology is no science,' but that the knowledge of varieties and their comparative excellence comes from a long life study and familiar acquaintance therewith, and that while we concede a doctor, lawyer, or other professional men, as well as editors of our journals, of fine taste and capable of appreciation of the beauty of fruits, do we not know that the knowledge of most such men is limited? Can we possibly compare their opinion as to fruits,

with the long life acquaintance and continuous observation and study of such men as Downing, Wilder, Barry, Thomas, Warder, or Ellwanger, etc.? *I* think not; and if you will allow me the excuse, it was from such idea that my foot-note came, egotistically if you will, for the purpose of counteracting what every fruit grower must feel is a prevailing fault, and lumbering up our catalogues of varieties, which are by the A. P. S. Transactions again to be reduced.

In my services of Secretary, I have had to assume responsibility, as you must know, and while with a due wish to check back errors, I may have overstepped in foot-notes, I think no one can say I ever assumed character as Secretary by signatures, nor do I think I have made near as voluminous remarks as are done by the majority of secretaries of Horticultural and Agricultural associations. I confess to speak disagreeable truths, and boldly at times, for I think it better than to nibble in a low voice; but while I speak, it is not for myself, but according to my views, for the benefit of those to whom my words may be applicable in their pursuits.

And now with the single remark that the labor on this volume of the transactions, occupied me over two months steady time, and that while its members contribute toward its publication, the great benefit is gained by the free dissemination of its contents throughout the public press, and like all of progress in horticulture, it has no patent right or security by act of congress from free exposition. I will leave it, and touch an item on *Pear Blight* in your July number, and ask when and how often are we to apply Mr. Saunders' wash of sulphur and lime? I have a large number of pear trees, and I have apple, also. I go through my trees to-day, and with what I suppose careful observation, I see no indication of blight. Three days hence I find a hundred or more limbs blighted, not only at ends, but down on the main branch—both on apple and pear. Enclosed I append a little paragraph of mine from the *Cleveland Herald: Pear Blight.*—This destructive agent is again among us, and within a week we have seen thousands of limbs and many whole trees blackened and dead with the disease called blight, a disease of which at this day no man knoweth the cause or remedy. There are various theorists—none, however, who have approached the ground that blight can occur when the tree is making only an apparent healthy growth. It is excess or starvation that form the basis of all the theorists on this subject. But, now, here we are in northern Ohio, with pear trees making an apparent moderately vigorous healthy growth, and yet daily blighting, branch after branch. Can the past year, which in its drouth, so affected the evergreens, grapes, etc., have penetrated the pear, and given it seeds of disease only to develop with the heat, as we now have it at 110 to 120° in the sun, and entirely free of moisture? Sincerely we wish some wise men would arise and tell us this cause of effect and a preventive remedy."

Asparagus.—I have for some years practiced cutting my asparagus stems from time to time during the season, just before they reach a blooming—seeding point. I leave the old stalks on the bed until late in the autumn, and then rake off and dress with manure and salt."

[Mr. Elliott has our best thanks for the facts and suggestions contained in the above note. In regard to the ignorance of certain classes, we still think that editors of journals or publishers of books can become as proficient as any other class of people, if their taste lead them that way. Messrs. Warder, Thomas and Barry, names mentioned by Mr. Elliott, all are, or have been editors, and so far as known, their pomological standing was not injured thereby.]

THE CLIMATE OF NORTH-EAST MASSACHUSETTS.—A correspondent of the publisher's says: "At the end of the season please discontinue the *Monthly*. Its suggestions are good for some localities, but hardly safe to follow in this cold region suited only to the grass crop and cucumbers."

[It is so rare for a subscriber who once takes the *Monthly* to discontinue it, that the publisher regretting that even one of his companions should stray from the fold, has handed us the letter. And we think truly that if after our assertion that the mission of the magazine was to make even the "Desert blossom as the rose," any of our readers should fail in raising anything more than a grass crop and cucumbers, we deserve to be cut off from their monthly esteem and regard. But still we hope that even only those interested in grass and cucumbers may sometimes find a hint or two of value. It so happens that while our correspondent was writing, an editorial on Rye Grass was going through the press; and we believe in the present month there is even an article on cucumbers. At any rate, if our correspondents do not find in

the magazine the matters about which they desire to know, it is their own fault, as the department of queries and answers is established especially for them, in which the editor endeavors to give information in all special cases to the best of his ability.

BEGONIA HYBRIDA MULTIFLORA.—*G. A. H., Fordham, N. Y.*: "I notice by the *Gardener's Monthly* for July, in your reply to Mrs. S. E N., that you 'do not recognize Begonia Hybrida Multiflora.' If you look at John Saul's catalogue you will find it advertised, and in the catalogue of Innisfallen greenhouses, and that of Chas. A. Reese. It is also advertised and said to be a hybrid of Begonia Fuchsoides and B. parviflora. Probably Mrs. S. E. N. received hers from one of those parties."

MONSTERA DELICIOSA.—*G. A. H.*, says: "I have looked through all the catalogues for 'Monstera deliciosa,' described by Robinson in his 'sub-tropical gardening,' without succeeding in finding it."

[In American catalogues it is known as *Philodendron pertuosum.*]

WINTER LOSSES.—*G. A. H, Fordham, N. Y.*, says: "Like many of your correspondents, I have been an astonished sufferer from the loss of evergreens, having a once beautiful Norway spruce hedge about one-third killed. Still my large evergreens have mostly passed through safely; but those that were seemingly best protected by buildings, etc., have been the worst affected.

It was truly painful for a lover of trees to ride through Central Park (on the westerly side) in May and early June, and see the immense destruction of choice evergreens there. Hundreds have been entirely destroyed and cut down as worthless, that had stood the winters for years unscathed. In Westchester county the native growth of cedars have been wonderfully affected. One place where for years there has been acres of cedars, I noticed a day or two ago nearly three quarters are browned.

I set out some large Arborvitæs three or four years ago, that did not do very well, but began to get well clad in foliage last year after cutting them partially down. They are exposed to all the sun and winds, yet strange to say, *they are all right.*"

[See an article in another column. Trees "protected by buildings" sometimes have *too much* protection—that is to say will suffer from shade in summer, or from the roots getting very dry by cellars or the roots of other trees in summer. After this summer struggle, their vitality will be low, and they easily succumb. The Central Park, we should judge by what the writer saw of it during its formation, would be particularly liable to suffer in summer time, as the whole of the under bed is solid rock. The Arborvitæs which grew so well last year after having been cut back, were evidently in a high stage of vitality, and escaped.]

CURCULIO-PROOF PLUMS.—*J. A., Old Mission, Mich.*, asks: "Are there some varieties of the plum that we might term *curculio-proof*, we all know that no plums are free from being punctured by the same; but some varieties will throw out water after being stung, which *destroys the egg.* Am I right?

[There are several varieties which "it is said" are pronounced "curculio-proof," but which when tried in the balance are found wanting.]

MEDICAL PROPERTIES OF NIGHT-BLOOMING CEREUS.—A correspondent says: "Did you know the American doctors have found a use in treatment of heart disease for the night-blooming Cereus grandiflorus. The most active part is said to be the flower, but the same principle exists in the plant, but to a less extent. I don't know if it is imagination, but it savors of quackery."

[The perfumers have essences of "night-blooming cereus," and other extracts of rare flowers, which would require acres of them to be grown to yield what they sell of it. It is well known that these things are made up of various little articles in the chemist's laboratory, and which never were near the flowers, the names of which they bear. We should be rather suspicious of much "doctor's stuff" coming ostensibly from Cereus grandiflorus, the night-blooming cereus.]

HARDINESS OF CUNNINGHAMIA SINENSIS.—*B. R., Allegheny City, Pa.*, asks: "Is the Cunninghamia hardy in this climate? Some of the most beautiful evergreens I saw in England were of this species, and if hardy I should like to have it on my ground. [It is as hardy as most of what are known as the rarer evergreen. About Philadelphia last winter it suffered little more than some hemlocks, cedar, or arborvitæs, but it must have partial shade in the winter to do well. In the sun it is hurt considerably in winter while young.]

NEW AND RARE FRUITS.

NEW PEARS.—The Poire du Congres Pomologique, or Souvenir du Congres, was raised at Rouen by M. Boisbunel, nurseryman there, in 1856, and dedicated to the Congres Pomologique of Lyons. So says M. Andre Leroy in his admirable pomological dictionary. The name of the raiser of such an excellent Pear deserves to be publicly known, hence my troubling you with this; and seeing, moreover, that Mr. Rivers has forgotten by whom it was raised.—H. K., in *Gardener's Chronicle.*

ROBBIN'S ARENA STRAWBERRY —The berries we had of this variety were not quite ripe, and we may not have spoken higly enough in praise of its flavor. Mr. A. G. Tuttle, than whom there is no better posted nor trustworthy judge of fruits in Wisconsin, speaks of this variety as a very promising berry. He thinks the flavor much superior to that of Wilson's Albany, and in other desirable qualities the Arena promises to equal the Wilson.—*Iowa Homestead.*

COL. CHEENEY STRAWBERRY.—Our readers will have noticed from time to time, what we have said as to this very valuable sort. *Be sure* that you plant a few *this Fall*, so that you may see their fruit next season. A more valuable variety we have never yet grown, judging from two years' experience.—*Small Fruit Recorder.*

FROGMORE EARLY BIGAREAU CHERRY.—This cherry is of large size, and is said to come into bearing as early as the May Duke. In a notice of this in the *Gardener's Chronicle*, a compliment is paid to Prof. Kirtland, of Cleveland, for his efforts in the production of new varieties of this delicious fruit.

PLOWDEN'S SEEDLING PEACH.—F. R. McC., Chillicothe, Ohio, says:—"I am looking to the August number with a great deal of interest. I hope you will be able to settle the question about the Plowden's Seedling Peach; if you can, the Peach grower will be under great obligations to you. The trees I got from J. B. Claggett, I am satisfied, are not Hale's Early, although I have not fruited them. Let us hear from you."

[The Editor endeavored to get a plant of this, so that he could have it under his eye, but without success; he has, therefore, to depend on the judgment of others. He has already given his opinion that the fruit sent to him last year was *not* Hale's Early. Since then, letters received from various parties who have grown it, or seen it growing, and the correspondents of several exchanges, all seem to unite in the opinion that the Plowden is not the same, but a distinct variety.]

THE CHAMBER'S PEAR.—Mr. W. H. Cox, Anchorage, Kentucky, under date of July 15th, writes:—"We send you by Adams Express this afternoon, one (1) small box, containing six (6) Chamber's Pears, for your examination and opinion. This fruit has been selling in our market this season for six (6) dollars per bushel, which is more than we can get in our (Louisville) market for any pears during the whole season. Our first ripened about the 10th inst., and we will ship our last the middle of this week. Their beauty makes them eagerly sought for, and they are of much larger size than any other pear of its season; the tree is a slow grower, long coming into bearing; when it does it is generally sure and abundant. We trust they will reach you safe and sound." [They did not arrive in good condition, but we could see that they were large, handsome fruit, much superior in appearance to any popular pear of its season.]

DOMESTIC INTELLIGENCE.

THE CABBAGE-MOTH.—Complaints have been made by correspondents in New York and New Jersey of injuries done to cabbages in the autumn by the attacks of a small, green caterpillar, that eats holes in the outer leaves, sometimes riddling them like a sieve. The caterpillar is about 0.35 of an inch in length, cylindrical in form, thickest in the middle, and of a green color. The moth produced from it was named *Plutella limbipenella*, by Clemens, and is de-

scribed by Dr. Fitch in the New York State Agricultural Report for 1853, page 874, as the cabbage-moth, *Cerostoma brassicella*, and is closely allied to, if not synonymous with, *Plutella zylostella*, Linn., in Europe; and if so, is another imported insect. When disturbed, this caterpillar drops from the plant, but suspends itself by means of a silken thread. There are at least two broods in one season in the more southern States. In the fall of 1870 it was very plentiful in parts of Maryland, riddling the cabbages very seriously. The pupa is formed in a beautifully constructed cocoon, woven of silk-like delicate open net-work on the leaves, and remains a pupa in the cocoon only a few days. The perfect insect is a small moth, with the upper wings of an ash-gray color, freckled on the disk and apex with black dots, and having a white stripe on the inner margin; the under-wings are ash-gray.

Washing or syringing the plants with whale-oil, soap-suds or strong solutions of tobacco water would no doubt be of use, if they did not give the heads a disagreeable flavor, or if the cabbages were subjected to a thorough washing before using. The insect is subject to the attacks of a minute ichneumon fly; and the two spiders, *Theridion brassicæ* and *hypophyllum*, mentioned by Dr. Fitch in his last report in connection with the white cabbage butterfly, will also, no doubt, be of service in destroying the small caterpillar. —TOWNSEND GROVER, in *Department of Agriculture.*

THE PLUM CURCULIO.—With the approach of warm weather, this little pest of the garden demands our notice. Its habits are now quite well known and it would seem that some certain remedy for the evil caused by it should be discovered. So long as frost continues, the insect remains in the ground or under some shelter which affords it a sufficient protection against cold; but with the heat of late spring and early summer days, it comes out from its burrow and flies abroad. The cool nights however compel them to seek temporary shelter; and by placing chips and bark under the trees and removing them early in the morning, numbers of this insect may be caught and destroyed. But this is a slow and uncertain remedy; many may be thus killed, yet enough escape to destroy the crop of fruit if other means are not used to capture and destroy them. A Michigan correspondent of the *Sun* thinks the odor of sulphur so offensive to the insect as to prevent its depredations, of this remedy we know nothing, having never tried it, but another remedy suggested by the same writer, viz.: planting plums in the hen yard, we know to be effectual if rightly followed up afterwards.

Use the spade around your trees early in the season, say from the first to the tenth of May, and some seasons earlier than May, and let the chickens follow the spade, working the ground over and over, and but few of these pests will escape their vigilance. These must be jarred from the trees early in the morning as the season advances, and the chickens will follow and pick up all the insects that fall. By carefully following these directions you may raise good crops of the finest varieties of plums, with very trifling outlay of money or labor.—D. WILMOT SCOTT.

THE IVES' GRAPE IN THE SOUTH.—We have had the Ives in full bearing only two years, but from that short experience, we consider it a grape of very great promise. The vine is remarkably healthy and vigorous; bunch large and very compact; fruit large, black, sweet and vinous, with a peculiarly tough skin. This latter quality makes it valuable for transportation to distant markets. It commences ripening with the Concord, but does not attain perfection until the Concord is gone, and should be permitted to hang many days on the vine after appearing ripe. It is not equal to the Concord in size and beauty of appearance, nor is it so good for the table; but it is superior in keeping qualities, and for distant transportation, and probably for wine.—Editor of *Rural Alabamian*

MILDEW IN GRAPES.—I wish to call the attention of the public to a remedy which although not at all fully tested, promises to be of immense importance to the public. In the year 1871 I desired to impregnate the Herbermont Grape, also the Bland, Madeira and Foreign No. 1, a very large October grape, with the Pollen from Peter Wylie, No. 1, so as to produce a hybrid or cross progeny. Knowing that both the Herbermont, Bland, and Madeira hybrid No. 1, would surely about all rot as they had been invariably doing in that locality, I concluded to keep the hybridized bunches covered with paper bags, putting a small pinch of sulphur in each bag, and keeping the bags on from the time they bloomed until they ripened; to my surprise not a berry rotted, when every other bunch on those vines rotted, leaving

scarcely a berry. When Mr. Ravenel, of Aiken, visited me in the fall of 1871, I called his attention to the remarkable fact. Although the experiment had been tried only on a very small scale, still I determined to give it a further trial this summer. Unfortunately, I was absent from home until the latter part of June, so that I did not get but a few put on before the 1st of July. I am satisfied that it will more certainly succeed when put on at the earliest period. I ordered from Howlet Brothers, 204 Fulton street, New York—2000 bags from eight to ten inches long and about six wide; a few blue ones but mostly white. I have put on over a thousand bags after either blowing the bunch over with a sulphur bellows or dropping a small quantity of sulphur into each bag, then drawing the bags over the bunches and pinning then with one or two small pins around the stem so as to keep out rain, birds and insects. So far the experiment is entirely successful, not a rotten berry to be seen except on one vine which was rotting badly at the time they were put on. The plan is simple and cheap; half-grown children can easily do it, and one person could put on 1000 easily a day. It is getting too late for the experiment for the South, but it could still readily be done at the North. Pins are much more convenient than paste. By cultivating grapes on elevated beds or ridges twenty feet apart, with deep water furrows between the rows to secure drainage, using the sulphur bellows when they first start in leaf, and applying bags at the time of blooming in conjunction with the soil and modes adopted by good cultivators, I believe that there is a hope for the foreign grape to succeed without grass. There is no danger of rain wetting off the bags which Howlet can supply.

I expect to keep the public posted in regard to the progress of my various experiments in grape culture and hybridizing through the *Reporter* and *Rural Carolinian*.

FOREIGN INTELLIGENCE.

GRAPE GROWING.—Speaking of a grower's skill, the *Gardener's Record* says: Among specialties in Vine-growing may be mentioned Mr. Stevens' mode of grafting, with eyes, in the autumn. Buds, with a modicum of wood, are nicely scooped out or sliced off and put in, in the usual manner, and being kept damp with a little moss, are speedily fixed into position by the descending cambium. Such buds are, of course, ready to start in the spring, and grow and fruit as if nothing had happened. There is thus a gain of several months, it may be also a season's crop; and besides, the eyes take with more certainty.

A singular change was effected by grafting a Muscat on the Trebbiano, the result being larger berries, ripening three weeks earlier, and without any perceptible loss of quality. One more cultural illustration, that of Vine-growing by express, and I have done. An early house of Grapes was cleared in May, the Vines torn up, new borders made, and fresh Vines planted. On each there was a noble bunch of grapes just coloring, and the Vines are such stuff as our prize-takers would like to handle. Two sets of vines were planted, permanent and supernumeraries, and it need hardly be added that it is the latter that are fruiting, though for that matter the huge bunch does not seem to have weakened the plants, and they are so vigorous that they will yield full half a houseful of Grapes next season. Sharp practice, is it not? but 'likewise skilful and most successful.

HEATING BY GAS.—Heating by means of gas is understood at present by comparatively few among the many amateurs who might be advantaged by it. Only in the neighborhood of towns is this mode of obtaining heat available, and it is in the urban garden for the most part where gas-heating is most required. The subject may be disposed of in a general way, for the comfort of such as prefer a summary to an argument, by the remark that a plant-house may be heated with gas in a most efficient and cleanly manner, and the heating apparatus will occasion less

trouble in management than any kind of apparatus requiring any other kind of fuel. But the conditions of success in this business are somewhat narrowly defined, and a mistake at any point may result in disasters, or, at all events, in a failure so complete that it will be needful to undo all that has been done and begin again. One of the most important conditions of success is to apply the system to plant-houses of comparatively small size. As a matter of fact, the greatest conservatory ever constructed could be heated by means of gas to perfection, but the cost of gas is necessarily high, and when we have to deal with a large house it becomes a sheer waste of money, and a most extravagant waste, too, when gas is employed. It is a question, of course, what is meant by the term "comparatively small size," and we should be disposed to draw the line for practical purposes between houses larger and lesser than about forty feet in length by ten or twelve in breadth. The kind of structure for which gas is best of all adapted is the so-called "conservatory" which is usually attached to the town residence, the length and breadth and height of which rarely gives so large a cubical area as the ordinary low-roofed plant-house forty feet long by ten or twelve wide, which we have instanced as the largest structure to which gas-heating may be applied conveniently.

The principal advantage of gas-heating is that stoking it dispensed with, and, if the pressure in the pipes is pretty constant, the apparatus may be left for many hours without attention, as the heat given off will be constant, and to a great extent determinable beforehand. It must not be concealed, however, that to manage a gas-heating apparatus requires some experience, and those who would succeed must habituate themselves to observation, not only of the action of the apparatus, but of its influence on the temperature of the house at different hours and in different states of the weather. A body of flame sufficing only to keep out frost on a frosty night with a clear sky might suffice to raise the temperature of the house to 70° or 80° on a mild night with a cloudy sky, and, as a matter of course, alternations so great and sudden would seriously injure the plants the apparatus was intended to preserve. Granting, then, that the adoption of a system of gas-heating will not absolve the amateur from responsibility to attend to its management, the next question is, what form of apparatus is the most to be desired.

The simplest form of gas-heating apparatus consists of a ring of jets burning blue, through wire gauze, under a small vessel filled with water, over which is placed a vertical pipe, the mouth of which expands like a hood over the whole affair, to catch and carry into the air without all the products of combustion. This has the advantage of extreme simplicity, and the disadvantage that it is slightlyinjurous to nearly all kinds of plants, but especially so to camellias, oranges, and other winter-flowering subjects. But for preserving bedding plants and ferns, and other quick-growing subjects, it answers very well; for, being in use only when severe frost compels the temporary employment of heat, the injury done is trifling, and the plants soon recover from it when the growing days of spring return. A merely common gas-flame is, however, not to be tolerated in a plant-house, except in the way of a few small jets to afford light, and these are always allowable, the minuteness of the combustion exercising so minute an influence as to be practically of no consequence whatever.

The best form of apparatus is that which consists of boiler and circulating pipes, and it is always advisable to place the boiler in a separate apartment, even if a portion of the plant-house has to be screened off by means of glass for the purpose. However careful we may be to provide ready exit for the products of combustion, a gas flame of sufficient power to afford the amount of heat required must prove prejudicial to plants when in close proximity to them. It commonly happens, however, that the house best adapted for gas-heating occupies a position adjacent to an entrance-hall or some other apartment, in which the boiler can be placed for both use and ornament. It must not be forgotten either that a boiler adapted for the purpose can be placed as well *beneath as beside* the conservatory to be heated, for the pipes in which the water circulates may range vertically or horizontally at discretion, provided the work is well done. Messrs. Wright and Co., of Broad Street, Birmingham, presented to the notice of our readers, in the advertisement pages of our issue for Oct. 7, a form of apparatus admirably adapted for heating simultaneously a portion of the dwelling-house and a plant-house adjoining. In many cases, Messrs. Wright's apparatus might be adapted to heat a bath-room and a plant house, and afford the additional convenience of management within doors, without any occasion for exposure to the night air in the winter season. A

similar apparatus, better adapted, perhaps, for being wholly contained within the house, is made by Mr. Trotman, of Isleworth; but this is less powerful than Messrs Wright's, and therefore only adapted to the smallest conservatories.

When it becomes generally known that plant-houses may be heated in the most perfect manner by means of gas, many who now deny themselves the pleasure of a greenhouse, because of the difficulties attending the modes of heating most commonly employed, will become plant-growers, and thus enlarge their round of home enjoyments. In common with many other things of the like nature, gas-heating must be well done, or it had better be left undone, for an ill-contrived or insufficient apparatus will be sure to work mischief and to make a mockery of its cost. We advise all who are considering the subject in view of the approaching winter to read the letter of "J. D.," which appeared in the *Gardener's Magazine* of the 30th of september last, for therein will be found suggestions and advices of a practical nature, the results of observation and experience.—*Gardener's Magazine.*

To Cure Thrip on Grape Vines.—The Editor of the *Gardener's Chronicle*, in answer to a correspondent, says:—Your Grapes and Vines are literally eaten up with thrip. The leaves you sent were swarming with the insects; we scarcely ever saw a worse case. It is all produced by mismanagement and neglect. and it will be years before your vines recover. As your Grapes of this season are worthless, cut them off and throw them away at once, as well as all the worst of the leaves, then fumigate with strong tobacco and syringe copiously and repeatedly every leaf and stem, and, indeed, every part of the house; at the same time you will have to give abundance of air, so as to ripen the wood thoroughly. When the vines are at rest, paint the stems with a good coating of soft soap, soot, and sulphur, and clean the house thoroughly. If even only air and more water had been given—*i. e.*, had a more genial atmosphere been maintained—your vines would not have been as they are now.

Keeping Grapes in Bottles of Water.—We have received from Mr. Nesbit, gardener to Sir T. Whichcote, Bart., Aswarby Hall, Lincolnshire, specimens of Lady Downes and Muscat of Alexandria Grapes, the former of which has been cut and kept in water for sixteen weeks, and the latter eighteen weeks. Both were as plump and firm as if they had been recently cut from the vine, and were equally succulent; but there was an evident loss of flavor. The perfume had quite or all but left the Muscat of Alexandria, which, so far as flavor went, might have been white Tokay; and Lady Downes were sweet without bouquet. Notwithstanding these evident deficiencies, both sorts were in the most perfect state of preservation, and served as a sufficient proof that the method of keeping Grapes in water-bottles during winter, though at the expense of flavor in the fruit, affords the advantage of enabling the fruit to be gathered and stored early, while it is preserved in a condition to be served at table as fresh in appearance as when taken from the vine.

We shall be very glad to receive any information on this subject from those who have practiced this plan. A week or two ago we gave a description of the arrangements for this purpose in the gardens of Earl Brownlow, at Belton, where the quantity of water taken up by the grapes was so great as to burst the berries.—*Journal of Horticulture.*

Peristrophe salicifolia aureo-variegata.—This has been flowering freely in the stove here all winter. I had a few small plants last autumn which were placed in the stove to get up a stock of it by spring for trial in bedding-out, when, to my surprise, it commenced flowering. The flowers are of a bright rose color, but rather insignificant, yet looking extremely pretty mixed with more gaudy flowers in winter. It is worthy of a place among choice plants, owing to its lovely foliage; the leaves are deep green with a gold band in the centre. The plants here are growing in peat and sand. It is a Javanese plant.—J. Smith, in *Gardener's Magazine.*

Begonias.—It may be remembered what a rage there was about a dozen years ago for those grand foliaged plants, of which B. Rex was the type. The reign of Rex, however, and its allied varieties, was soon over, and few gardeners now possess or grow these great lop-leaved kinds, as the numerous kinds of Begonias with small plain leaves furnish more desirable plants for pot culture. When arranging the planting of a warm conservatory here, I had deep borders made round the sides for growing climbers on.

These borders were about 2 feet wide and 3 feet deep, with 1 foot of broken bricks in the bottom for drainage After the climbers were planted, Begonia Rex, Marshallii, and other varieties with large variegated leaves, were planted in the centre of the borders, with an edging of different kinds of Selaginellas. These borders at the present time are very grand, for the Begonias show their fine variegated leaves to perfection when planted out, and many of them are covered with their sweet-scented flowers. A few plants of Begonia fuchsioides are dotted round in the borders, and this variety when grown 8 or 10 feet high, as a bush, is one of the showiest of the whole family, or I may almost say of any conservatory plant in cultivation. In these borders, plants of Bougainvillea speciosa and spectabilis were planted out, and flower well every year. This is effected by the borders being well drained, and the water supply at the roots being diminished so much in the winter time, that the plants nearly lose all their foliage. In March or April they are well watered with liquid manure, and soon begin to grow and show their leaves, the glorious masses of mauve-colored bracts following in May and June.—*William Tillery.* [These variegated-leaved Begonias form some of the finest of the grand objects in Mr. Mendel's unique tropical fernery. EDS.]—*Gardener's Chronicle.*

ROSES.—Nothing could be finer than the first bloom here last year, but orange fungus prevailed, and great mischief was done to the health of the trees by the destruction of the functions of the leaves. I regret to say, that though I put more than six hundred bushels of lime on my Rose ground and other plots with a view to destroy its spores, I still see a great amount of orange fungus on the new foliage.

I have cut back my Roses—my first cutting was just after Christmas—and I have removed all foliage where I can see fungus, heading-back the twig to a dormant eye. I advise this to be done, for orange fungus is a quick spreader, affecting the under side of the foliage, and greatly hindering a fine autumn bloom. The wood of Roses, from this cause and long-continued rain chilling the roots, has suffered much. The bark looks yellow (chlorosis—it would be better termed jaunosis, as chlorosis means, properly, green), and the pith, which should be white, looks salmonish. The more of such wood removed the better for the plant. I have cut down many of my bush plants to the stump. I cut down some last year to the stump, and they are now among my healthiest and best plants.

Judge of the health of your Rose trees by the color of the bark and pith; the former should be a healthy green, and the latter a clear white. As regards buds that have been frosted, if they feel soft pull them off; and if the two side buds look fresh let them remain, and when you see which is the better pull off the other.

It is so cold and exposed here, that I have rarely any white fungus. Orange fungus affects the stalks and under sides of the leaves, and white fungus the stalks and the upper sides of the leaves. I am determined to give no quarter to orange fungus. If necessary, I will cut down to the ground every plant.

I advise persons who have freshly planted Briar Roses to cut them very hard indeed the first year; for lack of this, and not mulching them, they are often ruined for ever.

With regard to Roses of late date, I consider that it takes two or three seasons before one can speak with certainty about them. I can give a high "testamur" to the following Roses on the Manetti stock:—Elie Morel, Felix Genero, Marie Rady, Alice Dureau, Perfection de Lyon, Madame Chirard, Edward Morren, Baronness Rothschild, *presque pleine*, its only fault, Countess of Oxford, and Marquis de Castellane. Under glass in my vinery on the brick flue, planted out in earth with a board to keep the earth up, I have three beautiful plants of Princess Christian. Its buds, wonderful sepals, foliage, and erect habit are first-rate; I do not know it out of doors, but I never saw a more perfect type of a pot plant. There is no need of triggers. The curt twigs are stiff as iron. In a few days all three plants will bloom; from the look of the buds I think it must be a good Rose. I dressed two of the plants with some stuff sent by Mr. W. Paul, and the plants soon went ahead of the other plant, which is a very good one. The stuff looked worthless, but it is evidently very powerful. I have two nice wall plants of Reve d'Or, which is distinct in color and form. The blooms, golden with a coppery center, were sent to me, and I thought them choice. After I have bloomed the plants I will report. I am more and more in love with Pradel's "darling." The Merechal is good on the Manetti, or Gloire de Dijou, and the Briar. W. F. RADCLIFFE, in *Journal of Horticulture.*

HORTICULTURAL NOTICES.

AGRICULTURAL AND MECHANICAL ASSOCIATION OF WEST ALABAMA.

Great efforts are being made to have this one of the finest meetings of the South this season. It will be held at Eutaw, October 22—26. On the 23, Col. Langdon, of Mobile, will deliver the annual address.

NEBRASKA STATE HORTICULTURAL SOCIETY.

The fourth semi-annual meeting will be held at Nebraska city, Nebraska, on Tuesday, August 6th. The merits of early fruits will be discussed. Col. Robert W. Furnas is Secretary.

MICHIGAN STATE POMOLOGICAL SOCIETY.

Executive Officers—President, J. P. Thompson, Grand Rapids; Secretary, C. J. Dietrich, Grand Rapids; Treasurer, S. L. Fuller, Grand Rapids.

Vice-Presidents—Henry Holt, Cascade; Hunter Savidge, Spring Lake; G. Parmalee, Old Mission; T. T. Lyon, Plymouth; E. P. Kelsey, Ionia; Joseph Bray, Middleville: S. B. Peck, Muskegon; Benjamin Hathaway, Little Prairie Ronde.

Executive Committee—N. P. Husted, Lowell; H. E. Light, Greenville; G. W. Dickinson, Grand Rapids; E. Bradfield, Ada; Charles Fasset, Spring Lake; W. I. Blakeley, Grand Rapids..

The meeting will be held at Grand Rapids on September 16th—21, 1872.

THE EIGHTH ANNUAL EXHIBITION

of the Kansas State Board of Agriculture will be held at Topeka, Kansas, September 16—20th. Alfred Gray, of Topeka, is Secretary.

FAIR OF THE NEW YORK CITY AMERICAN INSTITUTE.

Under more favorable auspices than heretofore, the American Institute, of the City of New York, will open to the public its forty-first exhibition, in the large Exhibition Hall occupied for the same purpose in 1869, 1870 and 1871, and now owned by the Institute; extending from Second to Third avenues, and from Sixty-third to Sixty-fourth streets, near Central Park, on the 4th day of September, 1872.

THE GREAT UNION FAIR OF MICHIGAN,

will be held at the city of Grand Rapids, September 16, 17, 18, 19, 20, and 21, 1872.

The Second Annual Fair of the Northern Michigan Agricultural and Mechanical Society. $22,000 in Premiums besides Diplomas.

The Third Annual Fair of the Michigan State Pomological Society. $1,000 in Premiums on Fruits and Flowers.

Attractions of the Fair.

$10,000 will be given as Speed Prizes which will bring together some of the best horses of the country.

The Premiums on Cattle are the largest ever offered in the West. $500,000 will be given as Herd Prizes. Every department of live stock is encouraged by like premiums.

The Products of the Soil, Machinery, Manufactures, and Fine Arts, will each receive due attention, and liberal Premiums are offered.

The show of Fruit and Flowers will excel anything of the kind ever seen in the country.

The Grounds, already large, are being enlarged and greatly improved. A favorable addition has been made, which will enable us to have the best Track in the State in readiness for the coming Exposition.

A new, large Art Hall, convenient in its appointments and proportions, and beautiful in style of architecture, will be erected at the cost of $5000. The Manufacturers' Hall, the Pomological Hall, and the Agricultural and Mechanical Halls, will be enlarged and improved, ready for the products of skill and handi-work.

Discussions upon Agriculture, Stock, Breeding, Pomology, etc., will be held each evening of the Fair week, under the direction of a joint committee. Noted and experienced representatives of these departments of industry, will be present and lead in these discussions.

The facilities for reaching the Fair will be all that could be asked. Reduction of fare for persons and their stock and goods, will be given on all thoroughfares. Ample accommodations are offered by the city for the entertainment of all visitors. The means of reaching the grounds will be increased by a horse railroad to the entrance gates.

Premium Lists and Rules and Regulations may be had by addressing any of the officers.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XIV. SEPTEMBER, 1872. New Series, Vol. V. No. 9.

HINTS FOR SEPTEMBER.

FLOWER GARDEN AND PLEASURE GROUND.

So soon as the leaves begin to fall, and the hot dry summer weather passes away, people begin to think of planting dutch bulbous roots.

Of all fertilizers, well rotted cow manure has been found best for them, and especially if mixed with a portion of fine sand. They should be set about four inches beneath the surface of the ground, and a little sand put about the roots when being planted. A very wet soil usually rots the roots, and a dry one detracts from the size of the bloom. A soil in which garden vegetables do well, is one of the best for these plants.

In selecting kinds to plant, the Hyacinth has of course the first place. They are usually set in beds where the summer flowers have bloomed; and are best set wide enough to allow of the summer bedding plants being put between them. They die soon after the spring flowers are set out, and can easily be taken out before the summer flowers grow strong enough to crowd them.

In selecting, a very good show of bloom can be had from the moderate priced mixed kinds. These, where one has not much aquaintance with them, will look nearly as well as the choice named kinds. The last, however, are indispensable to those whose taste has been somewhat cultivated by years of Hyacinth growing. For window blooming, the bulbs are usually set in four inch pots, about level with the surface of the soil, and the pots buried under ashes or sand until they begin to push. It is also as well before hard frost sets in, to cover the bulbs in the open ground with a little light litter. They are hardy enough; but the litter keeps the ground from thawing, which, oft repeated, draws the bulbs out of the ground. When the bulbs are to be grown in glasses of water, it is best to set the whole concern in dark places for some weeks; as darkness always favors the production of roots. When the tops are to grow, then all the light possible is necessary. But we want roots before we can have tops. Besides Hyacinths, other bulbs which are hardy, and can be set out in the fall are Tulips, Narcissus, Squills, Jonquills, Crown Imperials, Crocus, Snowdrops, and Japan Lilies. The Gladiolus is sometimes seen in these Catalogues, but these summer flowering things are all planted in Spring.

In many parts of the Northern States the leaves will have changed color previous to the incoming of winter, and the planting of trees and shrubs will commence as soon as the first fall showers shall have cooled the atmosphere and moistened the soil. Further south, where the season will still remain "summer" awhile longer, the soil may at any rate be prepared, that all may be in readiness when the right season does come. When there is likely to be a great deal of planting done, and only a limited number of hands employed, planting may commence early in the month. What leaves remain on should be stripped off, and the main shoots shortened. They will then do better than if planted very late. In fact, if planting cannot be finished before the middle of November in the Northern and Middle States, it is better as a rule, deferred till spring. In those States where little frost occurs, this rule will not apply. The roots of plants grow all winter, and a plant

set out in the fall has this advantage over spring set trees, that its roots in spring are in a position to supply the tree at once with food. This is, indeed the theory fall planters rely on ; but in practice it is found that severe cold dries up the wood, and the frosts draw out the roots, and thus more than counterbalance any advantage from the pushing of new roots. Very small plants are, therefore, best left till spring for their final planting. The larger things, and which we recommend planting in the fall, should be pruned in somewhat at planting. The larger the tree, the greater in proportion should it be cut away.

Before the summer flowers are gone make notes for the best things to be had for next year, and arrange now what are to go in the beds then. There will then be time to get all together. A friend has a bed of the early flowering Cannas which have made a pretty show on his grounds ; but last year he thought there was hardly gaiety enough with the curious leaves. He planted a few scarlet Gladiolus amongst them, and found they grew very well together. The leaves of Gladiolus hardly showed amongst the Cannas, so there was no incongruity. The effect was as if the Canna's bore the scarlet flowers. It is such ideas as these which give interest to a flower garden. So with leaf plants. The Coleus, Achryanthus, Belgonias, and such like, have much the best effect in partially shady places. There are other things which do best in the sun,—such as the Cannas, and Gladiolus aforesaid.

The best way to propagate all the common kinds of bedding plants is to take a frame or hand-glass and set it on a bed of very sandy soil made in a shady place in the open air. The sand should be fine and sharp, and there is, perhaps, nothing better than river sand for this purpose. The glass may be whitewashed on the inside, so as to afford additional security against injury from the sun's rays. Into this bed of sand cuttings of half ripened wood for the desirable plants may be set, and after putting in, slightly watered. Even very rare plants often do better this way than when under treatment in a regular propagating house. In making cuttings, it is best to cut the shoots just under a bud,—they root better, and are not so likely to rot off and decay. A cutting of about three eyes is long enough for most strong growing things, such as Geraniums, Fuchsias, &c.

Small growing things, of course, will take more buds to the one cutting. From one to three inches is, however, long enough for most cuttings. They should be inserted about one-third of their way under the sand, which latter should be pressed firmly against the row of cuttings with a flat piece of board,—not, however, hard enough to force the particles of sand into the young and tender bark, which is often the first step to decay. For a few cuttings, they may be inserted with a dibble ; but where many are to be put in, it saves time to mark a line on the sand with rule or straight edge, and then cut down a face into the sand, say one or two inches deep, when the cuttings can be set against the face like box edging. All amateurs should practice the art of propagating plants. There is nothing connected with gardening more interesting.

FRUIT GARDEN.

Another year of bountiful crops has awarded the efforts of the fruit grower, and hundreds will plant who have never thought of it before. On the other hand many who have grown for market are discouraged by the very abundance. The enormous quantities produced have so cheapened them, that hundreds have been almost ruined.

The public was not prepared for such great abundance. Now just as people are getting to use fruit freely, and making it by habit a necessary article of food, growers will go out of the field, and in consequence, even with good crops another year, the demand will probably exceed the supply. Thus these little waves of success ebb and flow ; all we can do is to go on with our hints for the success of fruit growing, knowing that these little incidentals will regulate themselves.

The planting of the Pear, Apple, Plum and Cherry will soon be in season ; Peaches Apricots and Grape Vines, except south of the Potomac being for the most part left till spring. Choose a dry piece of ground. If not naturally dry, it is best to throw the earth up into banks or ridges and plant on them. This is cheaper and better than underdraining. In planting, if the roots appear deep, cut away some of the deeper ones, and shorten some of the top of the tree at the same time. This is particularly true of dwarf Pears which are often grafted on rather long Quince stocks. Cut all away of the Quince root but about six inches, and if this should be found to leave few roots, cut away the

top correspondingly. Most of the failures with dwarf Pears come from bad Quince roots, so deep in the ground the lower parts decay, and this decay gradually communicates upwards until the whole system becomes diseased. The more tenacious the subsoil the more necessary is it to attend to this matter. We spoke of pruning in proportion to injury. It will be found that all trees are a little injured by removal, therefore all trees should be a little pruned at transplanting.

In preparing for planting trees, the soil should be stirred up at least two feet in depth. Of course, the trees should be planted in the holes only so deep as they stood in the ground before, rather higher, if anything, as the soil will settle. Good common soil may be filled in the holes if the natural soil is very bad; but anything applied as manure may be stirred in the surface-soil after the trees are planted.

Some talk, in preparing an orchard, about making "one large hole" for all the trees. This seems witty, but it is an expense which very few orchards will ever repay. Water is likely to stand in the deep holes we recommend; but in such cases we would, rather than go to the expense of subsoiling the whole orchard or underdraining, plant higher than they grew before—higher than the surrounding soil, mounding the earth, as it were, above the level. No water will ever stand here. And the money usually spent on making "one big hole" of the "whole" orchard, or in underdraining, we would spend in annually surface dressing the ground.

Trees that have long stems exposed to hot suns, or drying winds, become what gardeners call "hidebound." That is, the old bark becomes indurated,—cannot expand, and the tree suffers much in consequence. Such an evil is usually indicated by grey lichens which feed on the decaying bark. In these cases a washing of weak lye or of lime water is very useful; indeed, where the bark is healthy, it is beneficial thus to wash the trees, as many eggs of insects are thereby destroyed.

The old practice of slitting hidebound Cherry and other trees with a knife, had much more sense in it, than some of our leading minds are ready to admit

VEGETABLE GARDEN.

The main crop of Spinage should now be sown. Properly cooked, there are few vegetables more agreeable to the general taste, and few families who have gardens will wish to be without it. It is essential that it have a very well enriched soil, as good large leaves constitute its perfection as a vegetable. As soon as the weather becomes severe, a light covering of straw should be thrown over it. A few Radishes may be sown with the Spinage for fall use.

Turnips also may still be sown. In fact, if the soil be rich, a better quality of root for table use will be obtained than if sown earlier.

Celery and Endive will still require the attention in blanching described in former hints.

Cabbage and Cauliflower are sown this month for spring use. The former requires some care, as, if it grow too vigorous before winter, it will all run to seed in the spring. The best plan is to make two sowings—one early in the month, the other at the end. The rule is get them only just so strong that they may live over the winter in safety. Many preserve them in frames; but they should have wooden sashes or shutters instead of glass, so as not to encourage them to grow much.

Cauliflower, on the other hand, cannot well be too forward. Most persons provide a pit of stone, brick or wood, sunk five or six feet below the surface of the ground, into which leaves, manure, or any waste vegetable matter is filled. When quite full it is suffered to heat a little, when it will sink somewhat and have more material added to it; about six inches of good rich loam is then placed on it, and early in November the Cauliflower planted out. The object in refilling the leaves so often is to insure the plants remaining as near the glass as possible, which is very essential in the growth of Cauliflowers. Lettuce is treated in the same way, and seed should be sown now to prepare for the planting. The Cabbage Lettuce is the kind usually employed.

Tomatoes will still repay care bestowed in keeping them in shape. Those grown on stakes should be tied up, and will continue bearing for some time yet. Where the ground is very dry, waste water from the kitchen will benefit them.

Potatoes, as soon as the tops are well decayed, are best taken up at once, as they appear less liable to rot afterwards, than if left long in the ground.

Egg plants like plenty of moisture, with sun and air. If the ground be dry, give them abundant manure water, they will bear until frost.

COMMUNICATIONS.

WHAT I KNOW ABOUT TURNIPS.

BY DAVID LANDRETH, PHILA.

(*Continued.*)

Method of Saving for Winter Feeding.

The English, who are our instructors in this branch of husbandry, and have taught us most of what we know on the subject, have some advantage in climate over us of Pennsylvania, though not of the South, which admits of feeding the bulbs as they stand in the ground, as well as under cover,—the stock, especially sheep, being grazed upon them, using hurdles to confine the flock to a limited space. A flock destined for the butcher being first turned in, where they may feed upon the better portion, then moved into a fresh enclosure, thus enticing the appetite. These are succeeded by a store-flock, which picks up the fragments so that nothing is lost. This process corresponds with that of our prairie farmers, who turn their beef cattle into the standing corn (to us of the East, a bad practice,) and follow by hogs, which we are told, find every stray grain; and aid in preparing the land for the succeeding crop.

In our country where a five-acre patch of Ruta Bagas cannot be found within some of the States, to say nothing of counties, the statement may excite suprise, that a hundred acres in that root in the hands of a single farmer of Great Britain is by no means unusual; and it is within a few days the writer entertained an English farmer who himeslf had 250 acres in roots annually! Of course such large breadths demand every mechanical device and appliance for saving the crop, and instead of, as with us, each bulb destined to be stored being pulled up singly by the hand, and cast into a heap; then again taken in hand and topped, again cast into a heap preparatory to being hauled away, they, on the contrary, top with a hoe. A light sharp, steel hoe is held perpendicularly in hand, and with a quick action drawn horizontally, thus decapitating each bulb in succession as it stands in the ground. This done, they are drawn out into windrows by a chain-harrow, an English implement which we have in use at Bloomdale. It can be readily seen with what celerity this labor may be performed, and the great saving in cost. With our small patches we can get along, however, by the old time-honored practice; with increasing breadths of land in roots will come improved methods. We have adopted some already: instead of topping all the bulbs of the crop, we haul a portion just as pulled up, top and bulb, to a convenient position near the stables, place them in a narrow ridge-like form, and cover with straw, corn-fodder, or any light, trashy material which may be at hand. Thus they are preserved until New Year or longer, using from one end, and covering up after each removal. We have pursued this plan for many years. It is true, in warm, damp weather the tops partially decay, and become somewhat slimy, but the bulbs do not take harm, and cattle feed on them, and the tops, also, with much avidity. Perhaps a little salt sprinkled on each mess would be an advantage. For milch cows that is recommended to be given with roots immediately after milking.

The main winter and spring stock of bulbs we preserve in pits—not mounds, as made in some localities—narrow pits, after this fashion: Select a suitable spot, near the stables if practicable, but surely where the drainage is good, an indispensible pre-requisite; dig a trench sixteen inches wide, and as many or more inches in depth, the length as convenient or necessary. In this place the topped bulbs, and cover with the earth dug out of the trench, using a little more in addition as winter approaches. If cold may be expected in severity, place over all long stable manure, or anything which will impede the entry of frost, without creating warmth. Thus we have found roots of any and all descriptions—Ruta Bagas, Common Turnips, Carrots, Beets, Parsnips,—to keep well. They are accessible at all times, and when needed may be removed in larger or smaller quantity as desired. Altogether, it is better than mounds, which being elevated are exposed to frost, and require care in construction. In the pits described we annually keep beets and carrots far into the spring, indeed have fed our working oxen with beets, to their great delight, up to July 1st.

From what has been said, it may be seen with us theory and practice go hand in hand: we are simply describing our own operations at Bloomsdale, not telling what may possibly be done; and satisfied with the utility of our practice, confidently recommend it to others. Our experience with roots has been gained through many years, and stated in various publications,

especially the *Rural Register and Almanac*, published by us since 1847, and of which upwards of a half-a-million copies were called for the present year.

The culture of the turnip in this country now, as compared with half a century ago, to which the memory of the writer as applied to agriculture extends, has greatly widened and enlarged. Then, it was unusual to find more than a garden-patch, except where grown for city supplies, by market gardeners; and a few hundred pounds of seed filled the measure of demand. Now we have, while these lines are being written (June, 1872,) on Bloomsdale and its dependencies and tributaries, which embrace lands wholly owned, occupied and operated by ourselves, one hundred and eighty acres planted in turnips of various kinds, destined to produce seed, and fast ripening for the sickle; and in addition thereto, other acres under delegated superintendence, within a half-hour's ride, and to which daily access can of course be had. It is true this breadth probably embraces, no inconsiderable per-centage of all the land in similar culture within the Union; for the fact may not be generally known that the seeds of Ruta Baga and turnip sold by metropolitan seed-merchants are, to a great extent, imported from England, where the low price of labor and the much greater yield of seed per acre, (on the average double that in this country,) admits of production at less cost than here. That the quality is not so good does not always, as it should, enter into the calculation. It is a mercantile transaction! And why, it may be asked, is the quality inferior to the American? Simply by reason of climate. The humid atmosphere of England induces vigorous growth of foliage, and the longer season for the crop the seed there being sown latter end of May, and early in June, enables the plants to attain a higher development than known with us. If a Pennsylvania farmer, who never saw a Ruta Baga over five or six pounds in weight, were told that 100 bulbs weighing a net ton of 2000 pounds is not unusual at a county show in England, he would probably doubt, but it would nevertheless be true! This tendency to foliage preparatory to bulbing, is exhibited here by English seed, and if the season was long enough, would doubtless be an advantage; but our climate does not admit of spring sowing, and when made frequently late in July, (other turnips than Ruta Baga in August,) there is not time to profit by the habit—*there is plenty of foliage, but imperfect bulbs.* With home-grown seed, on the contrary, nature kindly steps in and adapts the plant to our season and climate —*the foliage and bulbs being in proper relative proportion.* Some years ago, owing to a failure in our crop of strap-leaved, flat Dutch turnip seed, we obtained from England one hundred bushels of the "snow-ball"—there an improved garden-turnip. On trial, it proved to produce tops only—*not a bulb;* and the importation had to be cast away as worthless. We had previously seen similar results with what are known as cattle-turnips. These criticisms do not, however, apply to the English Ruta Baga, which, many times, succeed quite well; though it must be admitted there is great tendency to elongated crown—"neck" as technically called; hence *we never sell imported seeds except on compulsion.*

(*To be Continued.*)

ON THE TREATMENT OF PEAR SEED.

BY MONS. LEVAVASSEUR, USSY, FRANCE.

It happens sometimes, in France, as well as in the United States, that part of a lot of pear, or other seeds, will grow very well and part, of the same lot, will not grow at all. It must, evidently, be owing to a different treatment of the respective parts of the lot. I will tell you, how, to the best of my knowledge, based upon practical experience, pear-seed should be treated.

The main point is to stratify the seed. That is, to lay it on or in the ground and leave it there, until it has acquired a certain degree of development, before sowing it. Of sundry modes of stratification, the most successful, with us, is as follows:

We select a sheltered place, exposed to the east, say the foot of a wall, or a hedge, for instance. If the ground is sound, we simply lay the seed over it, 7 or at the utmost, 8 inches thick. Rains keep it constantly moist, which is necessary for the preservation of its germinative quality. If laid on thicker, it might dry up, or mould and become worthless. We cover the layer with moss and the whole with turf, in order to protect the seed against air and other exterior agents, and keep it at an even temperature. Thus it gets all the moisture and heat it requires for germination.

If the land is wet, let the layer of seed be smaller and thinner, and dig a drain around it. If the land is very dry, dig a hole, 6 or 7 inches deep, and lay the seed in it.

Before being stratified, the seed should be soaked in water during 4 or 5 days, mayb

longer; in fact, until the meat has swelled out and fills the shell completely.

The earlier the stratification is done, the better it is. Oftentimes, a delay of a couple of weeks will put the germination back for one year.

Even this method does not absolutely insure success. The phenomena of germination are most complex and insolvable. We see effects, but many of the causes escape observation. Electricity, I presume, has, somehow, a great influence over germination.

Monsieur Carriere, chief manager of the nurseries of the Museum of Natural History, of Paris, wrote in one of his works that pear-seed, sown without preparation, will grow only the *second* year, but, if well washed, and thus ridden of a sort of mucilage, which sorrounds it, like a water-tight coat, and prevents the action of air, as well as that of water, it will grow very well the first year.

I cannot, as yet, bring myself to place implicit confidence in that statement. But I shall try the experiment next season, and before the stratification, while the seeds are soaking in water, I will rub them gently together, so as to remove the gelatinous coat which covers them. I will let you know with what result. Please try also, and have the goodness to report the result to me.

There are other ways to stratify pear-seed, one of which is to mix it with sand, as you say. But on serious consideration, I think the one we use is the simplest, the most natural, and thence the best.

Pear-stock growers who find, in February, that their seed has not started to grow, place it, then, on a hot-bed, and generally with good success. [We are indebted to Mr. Itaoux for the privilege of using this excellent letter.]

HOT-WATER HEATING.

BY W. SAUNDERS, WASHINGTON, D. C.

In laying iron pipe for the purpose of heating green-houses by the circulation of hot water the idea has somehow become quite prevalent that, in order to secure a proper flow of water, it is necessary to incline the pipes for some distance from the boiler. In other words, the flow-pipes are laid on an ascending grade and the return-pipes on a descending grade. There is no rule or uniformity as to either the extent of the ascent or the distance to which the ascending pipes are carried. These conditions are generally regulated by the length of the house; it may be 20 or 200 feet in length; in either case it is considered necessary that the flow-pipes should rise until the length of the house is reached; then the water is conducted in a descending grade to the boiler.

The fact that the point at which the downward flow commences is not fixed by any rule, shows very conclusively that neither the length of the ascending pipe nor the height to which it reaches is essential in the abstract question of the circulation of the water, but is merely a matter of fancy or convenience in the mechanical arrangement of the pipes.

Pipes arranged in the above manner usually work very well if laid in straight lines having but few bends or turns, and even with these the heated water will gradually circulate throughout the whole; but it is very doubtful if there is a single advantage gained in having the water circulated in ascending pipes, which requires more force and involves a waste of time on account of friction on the sides of the pipes; and experiments prove that there are disadvantages connected with it, which, although but slight in many cases, yet in others have been found sufficient to cause an imperfect circulation, which has been remedied by altering the pipes so as to take advantage of gravitation.

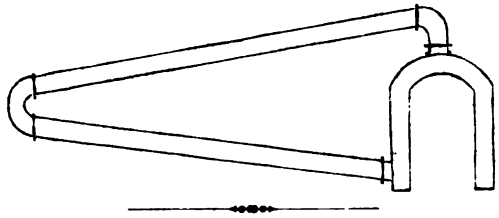
But it appears that many persons are of the opinion that it is an absolute necessity to lay the flow-pipes on an ascending grade, and in consequence it frequently happens, in order to meet this supposed necessity, that heavy expenses are incurred in sinking and draining deep stock-holes for the reception of the boiler. It is, therefore, important to know that the efficient working of the apparatus does not depend upon having the pipes laid on an ascent; but that, other things being equal, the most rapid circulation is secured when the top of the boiler is the highest point in the whole arrangement, and all the pipes are descending from that point until they reach the bottom of the boiler.

Theoretically it seems plausible that this mode of laying the piping should act in the most perfect manner, as the water has the advantage of gravitation to assist its movement through the pipes, and thus overcome, in the best possible way, the retarding effect of friction on the sides of the pipes The fact that the heat is conveyed by the circulation of the water affords a good reason for the slower movement in an ascending pipe, as compared with the more rapid flow when the course of the water is on a downward slope,

and the movement assisted by gravitation, in addition to the force procured by the difference in density between the highest and the lowest points of communication with the boiler.

If the water absorbed and transmitted heat by conduction only, then the position of the pipes would be but of little importance; but as it is by convection, circulation, or actual movement of the water, then gravitation and diminished friction are notably influential in the efficient working of the apparatus.

The following sketch indicates the arrangement of a boiler and piping that will operate to the best advantage:



THE YSTLE AND MAGUEY.

BY PROFESSOR S. B. BUCKLEY.

The enclosed communication on the Ystle and Maguey was written by Mr. Hastings, an intelligent American gentleman of Tamaulipas, Mexico, for the Brownsville *Sentinel*, of Texas. Last summer I saw Col. Ford, of the *Sentinel*, and requested him to send me some of the Ystle, and all the information he could about the plant, and here you have the result: The large Maguey (*Agave Americana*) is hardy in the open air at Austin, and I think it would thrive in all of the warmer portions of the Atlantic and Gulf cotton States.

Austin, Texas, October 15, 1871.

I see by some of the Northern periodicals that the Ystle plant is attracting some attention, or it may be but curiosity as regards the source from whence is derived the fibre called Ystle, that is being shipped, to some extent, to the United States from Northern Mexico. The plant from which this fibre is extracted is of the *Agave Americana* family, and is called here where it grows, *lechuguia*. It is an evergreen, the leaves are broad at the base, gradually narrowing to the point, which is armed with a strong or sharp thorn or spike; they are slightly concave on the upper sides, and armed among the edges with cat's claw thorns. It grows in bunches without trunk or stem, but while it flowers it sends up from the centre of the spreading leaves a stalk of some ten or twelve feet in height, on the top of which comes forth the flower. It flowers but once and then dies. New plants spring forth from the roots of the old one, and thus the supply is continuous.

The above description would answer in every respect for the "Maguey" (*Agave Americana*) plant. The only difference perceptible are, that the latter plant has leaves four or five times as long as the former, are much thicker, of a darker green, and is a larger plant. Ystle is extracted from both of these species, although the "lechuguia" is the legitimate Ystle plant. The fibre of the Maguey is superior to the other, being longer, finer and whiter, and of course commands a higher price.

The manner of extracting the fibre of these plants here is quite primitive, no machine having as yet been found that will give satisfactory results. The work is most all done by hand, the only instrument used being a wooden knife, which serves to scrape off the fleshy parts from the leaf, the fibre is then separated by whipping it around a post, then dried in the sun, and the process is complete.

There are thousands of acres of lechuguia in the State of Tamaulipas. It literally covers the ground where it abounds, rendering it entirely useless for anything, except a secure refuge for snakes and armadillos.

The Maguey is a much more useful plant, and is also a beautiful one. At present the chief use of it is to distil an alcoholic liquor from it called "Vina Mescal," by the natives. The leaves (pencas) are trimmed off from the lower part and thrown away, being most undoubtedly the most valuable part of the plant. The head, or as it is called the *pina*, is then roasted, pressed, and the juice thus obtained is allowed to ferment; it is then distilled and *mescal* is the result. A small portion of the leaves are utilized by the *mescaleros* in thatching their houses, but nine-tenths of them are left in the woods to rot. This plant also yields a sap or juice while standing, from which is made the great Mexican drink known as *pulque*. To obtain this the centre of the plant is cut away, and a saucer shaped cavity is made in the solid part that remains below, into which there filters a whitish sap of rather a disagreeable taste to one who is unaccustomed to its use. This sap is called *agua miel* (honey water), and is highly medicinal in its crude state. When allowed to ferment it becomes *pulque*. It is also subjected to another process, that of slow evaporation over fire, until

it becomes of a syrupy consistence. This syrup is very sweet, and is an excellent substitute for molasses.

A good-sized Maguey is very productive. The *agua miel* is drawn off from the cavity above mentioned twice a day, and it continues to yield for several months. From the fibre ropes, bagging, matting, and a variety of useful articles are made; the *pina* after being roasted is eaten with relish by the workmen at the distilleries, and is very nutritious, sweet, and has not an unpleasant flavor. The flower stalk is used for rafters for the houses, being from twenty to twenty-five feet in length, and of great strength and durability.

Thus it will be seen that the Maguey is a useful plant, as it gives food and drink of different kinds, and houses to live in, besides other useful articles.

The time may come when these plants will be more protected than they are at present, and, perhaps, cultivated for the fibre which they yield.

I have heard that most of the Ystle shipped to the United States is converted into an imitation of horse hay, and mattresses, sofas, chairs, etc., stuffed with it, and sold as the genuine article.—[For the above excellent article we are indebted to the *Rural Carolinian*.—Ed. *G. M.*]

ELEVATED HOT-BEDS.

BY JAMES WEED, MUSCATINE, IOWA.

In a former communication I ventured the opinion that the use of stable manure for heating hot-beds is a wasteful practice, and that fire heat can be substituted to great advantage, especially for forwarding plants in spring, when the season may require only a low degree of artificial heat, or a full amount.

The objection to "fire hot-beds," for forcing in win ter, thatthey are inaccessible, I propose to obviate by elevating hot-bed frames on posts seven or eight feet high, with walks between them; each frame being provided with efficient shutters; the walls of the enclosure to be made as perfectly non-conducting and tight as possible, also the floors constituting the walks between the frames above, so that when the shutters are closed over the sash, frost will be excluded in the coldest weather, without the aid of artificial heat.

Prof. Nyce, in the construction of his fruit house, had two objects to accomplish, the exclusion of heat from without and the prevention of its escape from within. He therefore commenced his structure with a heavy non-conducting covering of the ground on which he built, and upon this he erected walls so perfectly non-conducting that, with the aid of ice on the metalic floor above, he was able to maintain a uniform temperature of 34° without danger of frost in the coldest weather in winter.

With walls of this character without the non-conducting floor to exclude the internal heat of the earth,and with close fitting, efficient shutters over the sash, we have a first rate place to grow plants,—if it won't keep apples—a plant structure that may defy the elements. "Make hay while the sun shines" is a proverbial lesson wisely taught to all young men, but with a waywardness and pertinacity of our own, we have been trying for years to devise means to make hay while it rains, and now at last, have a tolerable prospect of success.

Grow plants when the weather is warm, might also be golden advice for "the millions," but all mankind are not wedded to the "lazy system," and success under difficulties is always more highly appreciated and sometimes profitable.

BEGONIA HYBRIDA MULTIFLORA.

BY H. E. CHITTY, BELLEVUE NURSERY, PATERSON, N. J.

Mrs. S. E. N., in *Gardener's Monthly* for July, page 216, writing of her beautiful Begonia, describes the *B. Hybrida floribunda*, (in some catalogues *B. Hybrida multiflora*) a hybrid from *B. fuchsioides* and *B. multiflora*, though some catalogues name B. parviflora as one of its parents. It is a very neat growing, free flowering variety, having much the general appearance of B. fuchsioides; the leaves however are more obtuse in shape,and the flowers, instead of scarlet, are a delicate pink, freely produced at most seasons, which makes it a most valuable window plant, quite worthy of a lady's care.

Mrs. S. E. N. should now add as companions to the above, B. Saundersii, bright scarlet, flowering continuously. B. alba perfecta, pure white, a very dwarf growing kind, and always covered with bloom. And as a very superb pink flowering kind. B. Weltoniensis flowering throughout the summer, fall and winter. These four Begonias will furnish a display of bloom nearly the whole year, and if nicely grown will always be beautiful whether in flower or not.

NOTES FROM MISSISSIPPI.

BY MR. J. E. BUCK, MUSHULAVILLE, MISS.

During my stay in this section of the country, I have been so much impressed with the benefits a knowledge of its advantages might confer upon many who are seeking for a new home, that through the columns of your paper I would present to the public, certain facts regarding it, which have come under my personal observation, and which probably are unknown to the people at large.

The country around this locality is beautiful, undulating *upland*, sandy loam, with red clay sub-strata, and many small streams, which furnish what are called "creek bottom" lands, not swampy, but alluvial tracts, varying from a half to a mile in width along the creek or stream, and readily draining themselves; while the higher lands are peculiarly adapted to improved farming. clover, &c., growing finely wherever it has been tested. The people in present possession do not begin to appreciate improved culture, and consequently do not know the real value of their lands. Could some one whose knowledge of farming would give him a correct appreciation of land so well adapted to that purpose, ride with me over this picturesque region, with its equable temperature of climate, and see for himself its varied capabilities, I am sure his enthusiasm would equal mine, as also his surprise that any farm should be left untenanted. Near at hand too, are the cotton planters, who form the market as it were for this produce, for now, strange as it may seem, with lands in possession so favorable for such produce, the farmers here yet allow these planters to send to the north-west for food, provender and team, all of which might so profitably be raised on the spot, with these many running streams of pure water, and extensive natural range for cattle. The peculiar adaptedness of these lands for clover, grain, fruit and other crops, to which I before alluded, renders the possessor more than able to compete with the old cultivators of cotton, which cultivation indeed does not yield nearly the same profit in proportion, especially when we consider the necessary outlay of money to provide the needed food, cattle and forage for the exclusive cultivation of the "old staple." The result of the shortsightedness which fails to perceive this, together with the scarcity of labor, is that their lands are held now at prices far below the real value; the lack of knowledge in the way of management under the new regime discouraging many, inducing them to sell at *great sacrifices*, and move to some other field, to which *distance*, *novelty* and *imagination* give attractiveness.

I am satisfied that if the advantage of investment in these lands were only known, they would be eagerly sought after and bought up, the buyers realizing a splendid profit, when the capabilities of the country as farming land should be more fully demonstrated, and a colony built up of enterprising, thrifty men, who would be welcomed by the community here, which community would feel themselves benefitted, encouraged and strenghtened by such accession. To give you some idea of the cheapness of these lands, they *now* can be purchased at from three to five dollars an acre, at much cheaper rates than immediately after the surrender, when cotton commanding an enormous price, a few western men came in with mistaken notions as to the worth of free-negro labor, paying large prices for cotton lands, and not understanding either negroes or cotton culture, lost money in many instances, partly through their extravagant supplies to the freedmen, who failed to compensate them by equivalent labor. Some few persevered and are now making money, notwithstanding the high prices they then paid for the land. One of these is the present Governor, (Governor Powers) who has his home and plantation near this place. Then, too, many of the people have not the means for developing fairly what these lands are capable of, which lack helps to reduce their price to such a low figure—many acres lying idle since emancipation, from this cause. The place is very healthful, and attractive from many standpoints, and these neglected waste places must be made to bloom again, to a greater extent than even before the war. Let those who want homes give attention to this region—they will be well repaid. The latitude is about 33°; more desirable than farther south, as the productions of Pennsylvania can be combined with those of Louisiana, as sugar cane is being successfully cultivated in the adjoining county, (Winston county), while judicious rotation of clover, peas, wheat, corn, &c., would yield profit, and at the same time fertilize the ground. The people here do not appreciate the advantages of this diversity of produce, and would still make cotton "*king*," as if that alone were *cash*. Yet, as I said before, they forget that this cotton-cash goes from them to buy mules, corn, meat and flour, which they might as well raise themselves. The winters here are so short, that but little forage

is needed. Early fruit would pay well sent to Chicago, St. Louis, Louisville, &c., which fruit, with any sort of proper attention and culture, does magnificently here. The summing up of the whole matter is to proclaim that this particular district, beginning at a point about four miles west of Macon, extending in that direction to Louisville, in Winston county, along the main road between these points, and again fifteen miles from the road line on either side, this locality, I repeat, holds within itself a future of no small consequence, and should be dotted with many happy and prosperous homes. There are here some churches and schools, and a kind, hospitable class of people, fine fishing and hunting. While the emigrant to the north-west has uncleared land involving much labor before him, here we have at but little, if any extra cost, cleared tillable fields, and partially improved farms, with oftentimes excellent buildings upon them. Then again the market, the *final* market, is but next door to the farm, and the prices to be obtained for produce are higher than in the north-west. Corn brings $1.00 a bushel, especially in spring, and often from $1.50 to $2.00 when made scarce by its cultivation being neglected in the pursuit of cotton. So with many other articles, the added sum could be received here, which is now paid for transportation. There are now projected on the west side of this district, two important rail roads, which will cross each other at or near Louisville, Miss., just thirty miles west of Macon, and eighteen miles west of this place, Mushulaville. One of these rail roads runs from Memphis, Tenn., to Meridan, Miss., south-east, and the other from Columbus, Miss., to Vicksburg, south-west, both of them striking the Mississippi river most favorably to the people here. The Vicksburg rail road is now being constructed. Also on the east runs the Mobile and Ohio rail road, so that this area lies conveniently between two important systems of rail roads, all of it within fifteen miles of one or the other of these three roads. The Mobile and Ohio road offers excellent facilities for sending early vegetables and fruit to the more northern markets, where they bring fabulous prices. To return again and give you a little better idea of the prices of land, there is one place near the Noxubee river, said to have on it a pretty good frame house with about six rooms, not quite finished, which place contains twelve hundred acres, and which can be bought for $2.000. Another more pleasantly situated, comfortable frame dwelling, four rooms and outhouses, with a nice orchard, &c., three hundred and twenty acres, for $1,200. Another place, where I have spent many pleasant hours, very desirably located, one hundred and forty-five acres, cleared and fenced, with a comfortable frame dwelling of six rooms, can be bought for $2,500. The land is excellent, except about one hundred acres of heavily covered *pine* forest, which of itself I consider valuable. Then there is poorer land offered for $1.00 to $2.00 an acre; well located farms, but would require more fertilizing, and yet would pay handsomely.

Vineyards might also be made productive, for wild varieties of the grape grow abundantly, and bear in profusion. A resident of Columbus was in the full tide of success as a wine producer at the breaking out of the war, and has grown rich from that source, aided somewhat by general horticulture. His "scuppernong" wine is attaining quite a reputation. There are also here some areas or strips of land from one and a half to two miles wide, by three or four long, where the growth is almost exclusively magnificent mammoth pines. Both the rail roads which will cross at Louisville, Miss., will extend into regions where there are no pines, and where there are thriving towns, to say nothing of Memphis and Vicksburg. The saw-mills which might be established on the west side of the territory outlined, would find ample demand for their lumber at Louisville, a rapidly growing town; indeed all around us will come the demand for lumber. There are two cotton factories within a short distance—one five west, the other eight miles south of this point. The factory localities are right among the hills, upon bold running, small streams of the purest mountain origin. I have already alluded to the picturesque scenery; some of the views are truly inspiring, one can see for miles and miles over the extensive semi-circular expanse, enjoying that sense of pure pleasure—that enlargement of soul, which comes whilst gazing from these hills over the almost limitless outlook. Let those who can, come, see, and judge for themselves.

THE MARCHEL NIEL ROSE.

BY MR. ANTOINE WINTZER, WEST GROVE, PA.

This is one of the best yellow tea roses in cultivation. Having tested it the past three years, I find that it has no equal as a rose in the beauty and perfection of its flowers.

The plant is a vigorous grower, and is not sub-

ject to mildew when it receives good care. In its habit of growing it resembles the well known Noisette varieties of Solfaterre and Lamarque, only its flowers and leaves are larger and richer in color. It is also more double.

When planted in the greenhouse and well trained, the plant makes a beautiful appearance in full bloom. It is a rose that every cultivator and lover of plants should grow. As soon as it becomes more plentiful, it will, no doubt, become a general favorite. Like all of our good roses, its high price has prevented it from becoming more popular. But it is as readily grown as any other rose of its kind, from cuttings of the hard and the green wood. Among the thousands of roses that I have grown this season, I consider it the best for the size and richness of its flowers. Every one should give it a trial; any care bestowed on it will be well repaid. It will succeed best in a rich, well drained soil.

LAYERING.

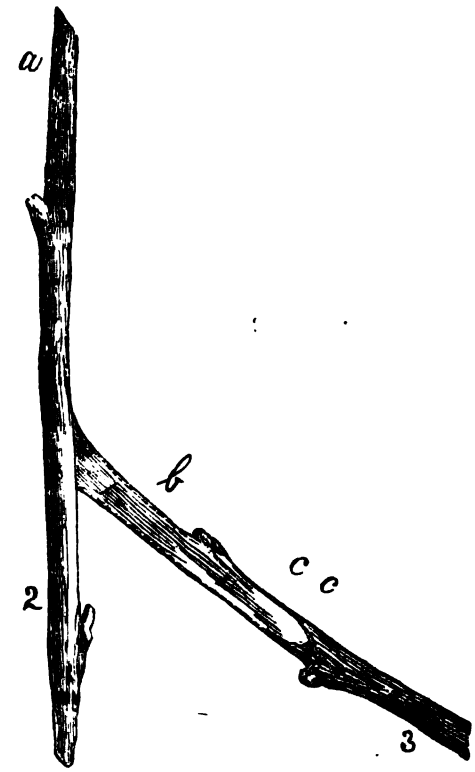
BY MR. H. E. CHITTY, BELLEVEN NURSERY, PATERSON, N. J.

Your illustration, page 214, *Gardener's Monthly* for July, explaining to S. C. B. the way to cut for a layer, reminds me that there are more ways than one of performing this simple operation.

With this I take the liberty of sending a rough pencil sketch, which will show my method of layering, and which I think upon trial will be found to possess many advantages over both the upper and under cut, among which may be mentioned the greater rapidity with which the work is performed, and the less liability to damage by breaking or cutting too deep, as is often the case, especially in layering wood of a brittle nature. And again with this method you can with safety cut much deeper, thereby hastening the rooting process. But in my opinion the chief advantage of this method consists in the ease with which it is done. The operator takes the shoot to be layered in his left hand (at *a*), and places himself exactly in front of it, he then with a keen edged knife in his right hand makes a tapering cut towards himself, the knife advancing directly between the operator's eyes, so that he may see to the hundreth part of an inch when to stop. The cut should gradually taper from where the knife enters to two-thirds through the wood, making a tongue from one to two inches in length, according to the thickness of the shoot. The knife should slope at an angle of about forty-five degrees, the point being farthest from the operator.

When the cut is complete, the operator still retaining his hold at (*a*) with his left hand, places the thumb of his right hand at (*b*) and the two first fingers at (*c*), and gently presses the whole down into the soft well prepared earth, until all the cut parts are at least one inch below the surface. It should then be well covered with fine earth, and a stone of sufficient weight put on to keep it in place, which completes the operation.

Another advantage which I had almost forgotten to mention in connection with this method of layering is, that the painful stooping position of the body necessary to make a horizontal cut, whether in the upper or under side of a shoot, is altogether avoided.



Explanation of the Sketch.—1 is the cut face; 2 the tongue; 3 connection with plant, the whole ready for pressing into the earth.

THE WINTER ON EVERGREENS AT HARRISBURG, OHIO.

BY MR. E. MANNING.

I see by the *Monthly* that great injury has been done the past winter about Philadelphia, and in

your State generally, to hardy evergreens trees, such as Hemlock and others. We have had a very hard winter here; hard enough to kill nearly all the peach blossom buds, &c. We have, however, escaped better than you.

All the hardier varieties of Firs have escaped. Of the rarer varieties here uninjured, are Nordmaniana, Parsonsiana, Pichta, Pinsapo, grandis, nobilis and lasiocarpa. The commoner varieties of spruce were uninjured. Of the newer varieties, Morinda, Orientalis, Whitmanniana, Archangelica, Menziesi, all are doing well. Of the newer varieties of Pine uninjured are excelsa, Benthamiana, Cembra. Of the newer varieties of Junipers here unhurt, are excelsa, Glauca, Glauca Virginiana, Variegata oblonga pendula. Of the Yews, Aurea is badly injured; Dovastoni, adpressa, uninjured. Of the newer varieties Arborvitæ uninjured are Golden and Buist's seedling (Rosedale), Retinosporas, newer Aurea slightly injured, Plumosa badly. Of the Box family, newer varieties uninjured are latifolia, longifolia, Aurea variegata, Fortunii, Silver tipped, Mahonia Japonica, very slightly injured, intermedia badly; Thujopsis, dolabrata and Variegata killed; borealis uninjured. Also uninjured Cepalotaxus Fortuni, Cupressus Lawsoniana and Torreya nucifera. Of the Magnolia family, the blossom buds of which were uninjured, are acuminata, auriculata, glauca, longifolia, tripetela, rubra, purpurea. Of the varieties having their blossom buds about half killed, are Lenne, triumphans, albo spectabilis, conspicua, Soulangiana, Alexandrina, surperba. Japan Larch or Abies leptoplepis uninjured and full of cones, finer than European larch. The lentiscus leaved weeping ash is uninjured here, and very splendid. It appears to be but little known. Of other uninjured trees are Salisburia, Virgilia, Liquidambar, Blood royal oak. Taxodium distichum, Glyptostrobus Sinensis pendula, Catalpa Kampferi, Rhus laciniata. There are many other varieties omitted which have generally escaped well.

Now Mr. Editor, you stated last fall in the *Monthly*, that Picea Nordmaniana was the finest of all the Fir tribe. I think if you were here and could see my Parsonsiana of seven feet growing hard by, you would have to partly "lower sail." Although I am willing to accord the Nordmaniana a very high position, the Parsonsiana is surely its full rival; and when I look at the Pinsapo, I see a peculiar beauty of its own, the most distinct of all. Of the grandis and nobilis not as yet of sufficient size to judge fully, I think they will yet both contend for the laurels. Of the lasiocarpa, it appears in this country the least known of all. I predict for it a high place. It is distinct, with long beautiful foliage. Some three years ago one of our American gentlemen on visiting England, pronounced it the finest of all evergreens in England, which is certainly saying much in its praise.

TREE PLANTING ALONG THE LINE OF THE KANSAS PACIFIC.

BY MR. R. S. ELLIOTT.

I wish you could see my little patch here—it looks charming. The rabbits did much damage, but looking at the field you would hardly suspect it. Trees that I thought were *barked* beyond redemption, are growing healthily clear to the tops, and some that were killed above ground by the "varmints" have remarkably vigorous shoots from the roots. Ash, Box Elder, Silver Maple, White and Lombardy Poplars, Willows, Walnuts and Cottonwood were not disturbed. The Ash, Box Elder, Cottonwood and the "Locusts" (Robinia and Gleditschia) are prime trees for this region. Lombardy and White Poplar (abele) will also prove of much value as rapid growers. But it is too soon to make up a list of best trees. Oaks from seed are an entire success; chestnut and pecan (from seed) have winter killed somewhat, and the former is also eaten off about four inches below the surface, apparently by a grub. *All* the seedling oaks are alive and are coming on finely. The Larch (European) also does well *here*, and *one* tree of last year's planting is alive and vigorous at Pond Creek. I have planted others at Ellis and Pond Creek this spring.

Experience here with evergreens is curious, to me at least. The rabbits or some other "varmints" ate off *all* the foliage and even the terminal buds from many of the little trees, and I thought when I saw them in March that they were gone past recovery. But the naked, leafless, budless stems have reorganized and sent out shoots, some of which are already from three to six inches in length. It looks queer to me. It may be all right, but I do not understand it. While I see lamentations in the papers of destruction of evergreens east by the winter, I feel delighted with my little rabbit eaten trees, now coming out so vigorously. Austrian, Scotch and White Pines do not seem to have been damaged by the winter. Of Corsican Pine the growth of

last year has in many cases been killed, and nearly *all* the foliage ; but the trees are growing from the parts nearer the earth. Norway spruce will not prove of value here or westwards, although some of mine are doing tolerably well. Ailantas, Box Elder, *Robinia*, *Gleditschia*, Coffee Bean and Black Walnut are up from seed. The walnuts were planted in spring of '71 ; some failed to come last year and are coming this.

Douglas says rabbits that would eat evergreens, must be of the rare species known as Jackass Rabbits.

THE FLORAL SABBATH.

BY THE REV. E. P. POWELL, ST. LOUIS, MO.

Let me tell you what essential service I think the flowers render to man. Say first to our bodies. One of the latest words of science is, plant as many odorous flowers near and about your dwelling as possible, for with the perfume is generated more of ozone than from any other source. Ogene is the element in nature antagonistic to putrefaction and miasma and consequent fevers. It is an old and generally known fact that plants and flowers are marvellously constructed to generate oxygen and absorb carbon, thus giving constantly to the air a life principle, and taking away a death principle. Contrary to a common superstition there can be nothing more healthy for a close room than a few healthy plants. We poison the air. Our lungs pour out a fearful volume of the smoke of the burning body—the carbon drawn by the blood from every nook and chamber of the system. The plants quietly take the poison, manufacture it into leaves, stalks and charming blooms, and give us instead the purest rectified air. So the little pot of the house-wife is something more than a mere minister of beauty, it is a servant of the household, working for meagre wages, incessantly to care for the health of the inmates. It is the resident family doctor, constantly and tenderly guarding from ills and dangers. Of course a diseased decaying plant gives out as much poison as it does life, and is a nuisance for the lungs as it is for the eye. It is a decrepid dotard of a doctor, prescribing mercury and opium and alcohol. But healthy plants are the most vigorous, untiring preservators of human life, health and beauty. Indeed, one might know this from the fact the world is but one vast garden, and if flowers were unhealthy, one summer would suffice to kill us all off. At least in some conditions of body there is nothing more conducive to health than the subtle aroma of certain blossoms. I can at times lay my head down with an inexpressible relief beside some of the pets of my garden, and feel a power most grateful and unmistakable while smelling some of the tiniest blooms of all. The same healing power lies in the odor of some of the shrubs. Of course very much cannot be expected from the so called house plants, that we often see lean dyspeptics, nearly bald, and not much more covering to their nakedness than Eve with a fig leaf. Generally two or three crooked sticks tied up to one straight one, the straight pine prop being the most interesting of the bundle. I should as soon expect to derive health from such a plant as from shaking hands with a hypochondriac.

Diseased plants like diseased souls, generate a poisonous mould, a curious microscopic fungus, a blight, an incarnated death makes its appearance, and that not merely to the danger of the plant life, but of our lives who tend them. Only the other day I placed in my microscope a fly, whose whole body was a garden of infinitesimal plants. A deadly vegetable life had invaded and driven out the animal life. The most fearful disease sometimes accrues to human beings from the same cause. The spous of dampness, the children of night, the germs of death, which we call fungus, attack the skin or the lungs, or the brain even ; they settle their minute rootlets or fangs into the pores of the flesh and live upon us as parasites. But like cures like. The best remedy for the effect of diseased plants lies in the healthy plant, in the sweet odors of the tea rose, the delicious intoxication of the Mignonette, or the delicate refinement of the sweet pea. But the influence of flowers goes still farther, it is a refiner of our spiritual faculties. They suggest purity, love, hope, sweetness, patience. Christ takes one for a text of faith, and another of industry. Who ever got a corrupt thought from his garden ? We are astonished when we find a base woman loving flowers, and yet it may be. It would be going quite too far to trust the sweetest of nature's influences to lead us to the high life of obedience. But they all tend in that direction. If I can get my young folk deeply interested in floriculture, I am sure of a healthy tendency in their minds. I am sure that it will be easier to induce them to love God. You know that earthiness of soul kills out generally all that is sweet and beautiful and instead you get the ugly and tasteless.

Flowers are full of language, as they are some-

times full of dew-drops and honey. Souls go fluttering to them as the bees go; and they express the care and love of God for us. Leave all the rest and take these, and I think we should know very much less of God than we now do. They constitute one of the features of God. We see a man in the flesh, that he uses for a body; in the books he reads, in the trees he plants, we read him in his features. So we find in flowers an expression of the nature of God, the delicate flush of his love; the tenderest fragrance of his thoughts. Some matter is very material, very gross heavy, as far as possible from spirit. A log is not far removed from the disorganized; but when you catch nature reaching up into a lily cup or the bosom of a rose, or blushing in an apple blossom, you feel that matter is almost escaping you—it is the exquisite refinement of matter, the most etherial touch of clay.

Flowers stimulate industry as well as lighten toil. For we must have them. We are cold without them, but to have them requires patient study, patient culture, and untiring determination. Every one must be studied alone. In perfection they can be had only in connection with art and a kind of horticultural genius. Their culture is an art. How they breath, and eat, and drink! How they vary their species—under what laws!

Flowers are also servitors of our imagination; they bring food to the poet. They produce an atmosphere that is peculiarly conducive to rythm. I do not know why it is that color and grace of motion and delicacy of form and perfume have such a tendency to make every eighth or tenth syllable rhyme, and every line begin with a capital, but so it is. What a constant tribute poetry pays to flowers. Can you find one of the great singers who has not at least a line, and mostly a poem in honor of floral charms? Take away noble landscapes, level down the hills, make the sun rise and set in drab, kill out the flowers, and the poet's corner would become very speedily a bean patch. Now the flowers come to the brain with a delicate touch, like the finger of a mother in sleep that takes the wrinkles out of dreams—they come with so fertile a resource for pleasing—tiny children with their arms full of every imaginable grace. You can see purity, modesty, benevolence, ambition, watchfulness, patience, truth, all somewhere about your feet. But not only do they inspire much of the rhyme of books, they beget much of the rythm of life. What do you suppose must be the power of a single fuchsia in a family? It never catches the eye of the mother without putting in a song; it calls the attention of the children, and displaces the rudeness of coarse work or vulgar contact. It doubtless has a powerful influence in making the whole family more neat, more tasteful, more courteous, more refined. I like to take out the animal, the feeding plague of eating, by putting a bouquet among the dishes.

EDITORIAL NOTES.

DOMESTIC.

Pear Blight.—The June number of the *Pomologist and Gardener* has some further remarks on Pear Blight—referring to our remarks in the March number. It says, "We were not aware that Mr. Meehan claimed to be the originator of the fungus theory." So far as we know there were no proofs offered that fungoid plants caused Pear blight, until Mr. Meehan's address before the American Pomological Society at St. Louis, in 1867. Certainly the intelligent gentlemen present had not heard of such a suggestion before, and some expressed an intention to debate against it; but after the address was delivered, and the proofs offered, no debate of any consequence took place; and it was the impression that the matter was set at rest by the facts adduced.

In the March number referred to, we said, "but no theory is needed. Any one who cares to take the trouble may see by the aid of a good glass the fungi operating. That which certainly exists must surely be possible."

But the *Pomologist* prefers to ask questions. "Why," it says, "should fungi attach to one tree and not to another of the same kind?" We reply, that we do not know; but we see that they do so attach themselves. Again, "the disease inducing cause whatever it may be, singles out certain varieties of the same species for its work of destruction. Now, why this should be the case if the fungi, and not atmospheric changes are the cause, is to our mind passing strange." It may be passing strange, but of what avail is this feeling of strangeness against the positive facts which the microscope reveals?

We suspect that our contemporary has not read the paper in the proceedings referred to, for it further says, "now so far as fungi are found in portions of the trees affected with blight, and *therefore assumed to be the cause* [the italics

are ours,] we would say that this is a position assumed, not proven." The "cause" was not "assumed" for any such reason. The part affected by blight has no fungus on it; or if so, only of those species which grow on decaying matter, and which only appear after life has gone. But the fungus which causes the injury operates *below* the injured part. It eats the healthy bark and wood, and when it has progressed far enough around to destroy all the vessels—the branch is practically girdled, and all above it dies. Meehan's observations have since been confirmed by the microscopical examinations of Hoopes. (See address before the Lancaster meeting of the Pennsylvania Fruit Growers' Society.) We repeat that, "that which certainly exists must surely be possible," and we think that no one, except those who prefer to be guided by "feelings passing strange," need be long in doubt with some confirmed specimens of recent disease before them, as to the true cause of *fire blight*.

Lilium Washingtonianum.—Mr. George Such finds this beautiful Californian Lily hardy at South Amboy.

Talinum patens variegata.—This plant sent out by some ignoramus as "Boussingaultia Lachaumi," proves to be an excellent variegated plant for standing the sun in masses for summer bedding.

Lilies of the Valley are now in much demand for winter flowers. Bouquet dealers find a large and growing demand for these sweet blossoms.

Variations in the Character of Fruits.—While Suel Foster, of Iowa, finds Hathaway's Michigan Seedling a competitor with the Wilson in productiveness and profit, Purdy, of Palmyra, N.Y., says with him it is so soft and insipid that it bears no comparison with Wilson for market purposes.

Western Landscape Gardening.—There is nothing more needed in our newer regions than an appreciation of the landscape gardener's art. Architecture, music, painting and sculpture, all have some homage paid them; but the pleasure which the garden and grounds can give by landscape gardening, though equally great with any of the arts named, is not so well understood. It is a pleasure to note that one of Mr. Bryant's sons has made this branch a special study, and has opened an office with his brother, the young nurserymen, at Princeton, Illinois.

Popular Names of Plants.—Many persons ridicule Latin names for plants. They are hard to learn to be sure, but in this difficulty consists their value. It is so easy to give a plant a common name, that it soon gets a score of them, and no one knows what another is talking about. White Cedar for instance in New Jersey is *Cupressus thuyoides;* but when a Western New Yorker says White Cedar he means the common American Arborvitæ. Up in Alaska they call the *Cupressus nutkaensis*, or as some botanists insist *Thujopsis borealis*, Yellow Cypress or Yellow Cedar; but now comes the *California Horticulturist* and writes of the "Yellow Cypress" as the *Thuja gigantea*.

We know how hard Latin names are, and sympathize with the young ladies and gentlemen who have to learn them; but as they grow in knowledge they will find it is not pedantry but necessity which gives the Latin names.

FOREIGN

Retinospora Elwangeriana. It is said, as we often hear it repeated, that when some French philosopher was told that the facts were against his theory, replied, "so much the worse for the facts." It is hard to believe that this is anything more than a joke, yet it has a practical exemplification in Europe just now. Ellwanger & Barry raised a seedling from *Thuja accidentalis*, and called it "Tom Thumb." Scores of American Arborvitæs have been raised by as many others, with much of the same character as this possesses. These facts were made known to M. Carriere, but "so much the worse for the facts" "*c'est non possible,*" so they regard it as a new species of Retinospora, *R. Elwangeriana.* If any of our readers desire to import this new Retinospora, they may find it in the leading French and German catalogues for twenty francs the hundred.

The Blue Glass Theory. M. Duchartre has an article in the bulletin of the French Central Horticultural Society on General Pleasanton's paper, in which he says only that the genuineness of the paper is vouched for on respectable testimony, he should regard it as a hoax.

Raising Seedling Trees in Europe. We imagine it is the climate which gives so much success to Europeans in their seed raising operation; but they have to learn the business as well as we. A writer describing the government forest tree gardens in Austria, says all the seed beds in long lines, are carefully protected by belts of shrubs.

Universality of Horticultural Pleasures. The *Gardener's Chronicle* has the following apt re-

marks in regard to the mission of Horticulture and Horticultural Societies:

"We have often had occasion to remark in these columns upon the great advantage that gardening, as a pursuit, presents to its votaries, from the immense variety it offers, and the ample choice it affords to men of all tastes, all degrees of intelligence, and pecuniary means. From the vast establishment of the wealthy, to the Tulip bed of the florist, or the Potato patch of the cottager, there is in gardening a perpetual source of recreation, instruction and practical benefit. Too many look on gardening in the light of a sensuous luxury only, they dwell too much on the mere gratification they derive from it in the shape of flowers and fruit. Our horticultural societies, and far too numerous exhibitions, unfortunately foster this tendency, and do not bring sufficiently to the fore the many higher delights a garden is capable of yielding."

Preserving Grapes in Winter. Mr. W. Robinson says that thousands of pounds of grapes are preserved during the winter season in the village of Thomery, in France, by merely putting the stems in bottles of water, and preserving the fruit from frost.

Vanilla Pods. The great beauty of orchideous plants has been sufficient to commend them to the cultivator; but they are furnishing profit as well to some English cultivators. One describes in the *Gardener's Chronicle* how he preserves the pods of the vanilla:

"Vanilla pods should not be cut until they turn a dark brown color; it is not absolutely necessary they should remain on the plant until the whole of the pod is covered, which first turns from a green to a yellow and then to a brown, but the greater portion of the pod must be colored before it is cut if required to keep any length of time. When cut it should be placed into a bottle tightly corked; in this way I have kept pods good for nine years. It frequently happens when the pods begin to color they open into two equal parts; should they begin to show symptoms of so doing, tie a small piece of matting at the extremity of the pod to prevent it."

Protogynous Flowers are those which protrude the pistils and are ready for fertilization, before the anthers of the same flower have matured their pollen. These are of that class as Mr. Darwin points out, which abhor self fertilization. This class offers great facilities for cross impregnation with the view of raising new varieties by hybridization. A correspondent of an English magazine points out that the potato is a very easy plant to cross for new variety, as it is protogynous.

Tree Lemon Verbena. In these days when *effective* plants are sought after, we should not lose sight of things at hand with which to produce as good results as any new introduction can afford. The London *Gardener's Chronicle* calls attention to the pretty effects which can be had from the common Lemon Verbena when trained as a standard. The wavy spikes of flowers are very graceful; and the odoriferous character of the plant will always make it a favorite in any form.

The Potato Disease. Dr. Kuhn has shown that the fungus which causes the potato disease, (*Botrytis* or *Perenospora infestans*), only propagates itself while the potato plant is living. Therefore the potato tuber receives its infection from the haulm or stems, and one potato cannot communicate disease to another.

EDITORIAL.

HARDINESS OF THE HERSTINE RASPBERRY.

Wherever we have seen this variety this year, the canes have been bearing in the greatest profusion, though in most instances, they were left to take care of themselves unprotected during the late trying winter. Its great beauty and excellent quality make every one wish that it would keep this way for ever.

It has been thought a settled question that no Raspberry of the foreign race is adapted to our climate. Certain it is that so far no Raspberry of that class has proved permanently reliable. Fastolf, Antwerps, Brinckle's Orange, Hornet, —all, in most quarters, suffer if unprotected, and the market grower has found that protecting does not pay in competition with kinds which do not need it, even though the kinds be of in-

ferior quality. The natives have been found hardier as a rule; but there are not wanting numerous instances of the Philadelphia, an undoubted native, being killed as badly as any foreign kind.

We think it will serve a useful purpose to reopen this question and inquire whether there is really any reason why the foreign kinds should be destroyed in winter,—whether it is not rather some defect in our treatment of these plants,—and whether it is not possible to preserve, generally, for many years such excellent varieties as Herstine for many years as healthy and every way as satisfactory as they are to-day.

We have stated before in these pages that it is in no instance frost which is the primary source of injury to a raspberry cane. They are killed in the winter or by frost to be sure; but there are always enfeebling causes at work, prior to the action of frost, which enables frost to work the injury. In this connection we refer again to our remarks on the "Influence of Food on Vitality," given in our last issue; and it will be found that it is only when some thing of this occurs with the raspberry that the canes die. One particular plot of Herstines that we have in our mind's eye had the plants set in a single row across a field, and each plant some four feet apart. The soil was naturally good; but in order to make the plants root and grow well so that stock might be rapidly produced, rich compost was put around each cane. The leaves were of the most rich and luxurious green all last summer; and, being healthy, remained on as long as the plant had any need of them. Such canes, of course, were healthy, and these healthy canes remained entirely unprotected, and uninjured through so hard a winter as the past was. If these canes had been enfeebled,—if from any cause the leaves had fallen before the canes were ripe, we should have had the Herstine added to the long list of varieties that will not stand our winter.

And the time will no doubt come when there will not be so great a demand for plants as now; when the suckers will be allowed to grow up thickly, crowding one another so that there will be a struggle among the leaves for light and air, and among the roots for a share of food; and the canes depending on the action of root and leaves will have their structure weakened,—and then the first little frost will kill them, and they will be hardy no more,—or if hardy, so weak and sickly that the cry will be for a new hardy kind, which the Herstine is not. For a plant once made sick, carries disease with it. We can reproduce health from a healthy stock; but to breed health from disease is about on a par with gathering figs from thistles, about the philosophy of which we all know.

Our opinion is most decided that the Herstine can be kept in our good graces for many years; but in order that it do so, we must make ourselves better acquainted with the laws of vitality than past raspberry history shows we possessed.

PUBLIC GARDENING.

It was a favorite idea with the leading horticultural minds of the past generation, that under our form of government there never would be the same encouragement to horticulture that it received in other countries. Wherever land descended from father to son, gardening taste was in a measure inherited. Here where our properties are sold when we die, or where with our desire to be doing something, we sell even the best things we love when the chance offers—in the country to-day, in the city to-morrow—those almost imperial horticultural establishments we find in other countries, rarely comport with the wisdom of things. An American can seldom afford to do that which may prove unsaleable; and a princely garden of all things is the last to sell.

Our fathers saw all this; but they believed that what the people individually could not do, collectively they would accomplish. They were quite sure the time would come when every city would have its park, garden, or public grounds, which in all the details of pure horticulture, would rival the famous possessions of European noblemen. Kew gardens, England, was their great ideal. As a crown garden under Aiton, it was a mere botanical collection, beyond the reach of popular enjoyment; as a real people's park, combining sound scientific instruction with floral pleasures which even a child can enjoy, under the Hooker's, father and son, it has been the great model of the world.

We started to imitate it. Under the wise counsels of Downing and Kingsland, the then mayor of N.Y., a good beginning was made. A fortunate selection of agents in Vaux and Olmsted, gave credit to the design; but we have all lived to see that even so noble a conception and execution as the Central Park can be blighted by the partizan hand of corrupt men. But we have

still held to the great Kew model, unwilling to lose our faith in the successful working of the principle so long as this world renowned establishment worked well.

But now comes the story of trouble even here. Men utterly unfit for office, by virtue of political favor, rule, and Dr. Hooker, unable to bear the insults put on him, resigns. The mass of the people favor Dr. Hooker, and it is not thought proper to accept his resignation; but these things once started, always grow, and though for the present the trouble may be hushed over, American experience goes for nothing if Kew has not seen her best days.

It seems to us that we who labor for the advancement of horticultural taste, may learn a valuable lesson from all these things. The science of government is ill understood. It is clear the American people are no more satisfied than are the Europeans. We expect very little from any form of government in the way of leading in horticulture or the kindred sciences Public gardens and Parks have arisen or been projected in most of our populous places; but except in a few instances the expenditures have been made as rewards to ignorant men for political party services, without the remotest idea of producing anything worthy of science or art in horticulture. American experience has been almost as unfavorable to the idea of tasteful public grounds, as to grand private gardens. We may have good breathing places for the masses, under the name of public parks, sometimes rising above mediocrity as examples of taste; but we look yet to individual effort for our most creditable results.

SCRAPS AND QUERIES.

PILEA MUSCOSA.—*Mrs. M. B. M., Burlington, Vermont*, sends us a sprig of this plant for name. It is also called artillery or pistol plant because the pollen is thrown away like a light flash of smoke, as the minute flowers open.

POST-OFFICE LAWS.—In sending fruits, flowers, or anything of this character by mail, the wrappers must not be sealed or gummed down at the ends; but lapped over and tied so that the officials can examine the contents if they desire, without destroying the wrapper. For the same reason the inside box must not be nailed, nor must there be any written communication within.

We note this here because a box neatly packed and sealed, on which the sender had already paid twenty cents, was presented to us recently with $2.20 additional postage to pay. As so many things like this come to us in a rotten condition, we feared it would prove a poor investment, and instead of receiving the parcel, thought it preferable to write this paragraph.

PRIMATE APPLE.—*L., Annville, Pa.*, writes: "I send you an apple, the grafts of which were put on for me by a traveling grafter, and which when it come into bearing last year, a good fruit man told me was Primate, but which another now says it is not. I should like to know it positively as it is really a good early fruit."

[The flesh of this is yellow, while the Primate is white. We have little doubt so far as we can judge of a single specimen that it is the Carver, figured in the third volume of the *Gardener's Monthly*. It is a little earlier than Primate, and quite as good as that excellent fruit.]

PLANTING BULBS.—Our friend Walter Elder has been examining a large collection of catalogues of leading dealers in bulbs, of this country and of Europe, and reports that there are an unusual number of rare kinds offered this year. He adds:

October is the best month to plant all the hardy species in open ground, and the more tender species for parlor and glasshouse culture. They all thrive in rich and fertile soil. They are not only all beautiful of blossoms, but many are delightfully fragrant. No flower garden is complete without a choice collection of lovely blooming bulbs.

DIŒCISM IN ASPARAGUS.—*Mr. Ravenal* says: "Your remarks in last number of *Gardener's Monthly* on the bi-sexuality of asparagus, I had noticed ten years ago, but said nothing of it, supposing it had been observed before. The

note from Mr. Sargent on 'the cutting back of asparagus,' and your comments, are interesting and suggestive. I was so impressed with the idea, that I at once turned in and cut down all the *fertile plants*, leaving the stems to grow and strengthen the roots. This 'slovenly cultivator,' according to Mr. Sargent, cuts down all 'his beds at this moment as smooth as the back of your hand.' But what is the necessity of cutting them all, when it is only the heavy drain upon the vitality of the plant in *maturing seed* which is injurious.

"I notice on my asparagus bed that not more than about one-third the plants bloom at all; and of these about half are staminate and barren, leaving, say about one-sixth of the plants only which mature seeds. Is this so in your latitude? Another observation I made is that the plants differ very much in their productiveness and their habits. As each plant is from seed, and therefore a new individual, (or in horticultural parlance, *a variety*), this may be expected. Some start up annually numerous small stocks—others fewer and longer. Of course the latter are much to be preferred; and if it were practicable to propagate by cuttings, buds, grafting, &c., as in fruit culture, we could at once improve vastly our asparagus culture. But as they must be propagated by seeds, and the dioecious habit (as you well observe) requires two individual plants, the only feasible plan is to destroy all the inferior plants, and only suffer the best stocks to remain for seed. This is for those who wish to improve the plant. The general cultivator cannot well afford to thin out his plants to such an extent.

[The asparagus is here as with Mr. Ravenal, in South Carolina, more than half produce no seeds; and only a very few of the plants are very productive.]

SEMPERVIVUM TECTORUM.—*Mr. Joseph Liggat, of Lowelville, O.*, sends us a specimen of this for name. It is commonly known as the House Leek.

COMPLIMENTARY TICKETS.—We are in receipt of a large number of complimentary tickets to exhibitions, some of them accompanied by kind letters from the officers of the societies. We cannot attend them all of course, but we hold these courtesies in grateful remembrance.

"PAYING THROUGH."—Notwithstanding our repeated advice to correspondents to mark packages "paid through" instead of merely *paid*, a very large number have been presented to us the past month which we have refused to receive. No matter how much be paid on a box, if it is not marked "paid" on the box, the full rate is to be paid over again; and if marked merely *paid*, it is insisted that that is only "in part" and generally one-half the whole is demanded. To mark "*paid through*" is the only security. If objection is made, we are told to "write for the receipt," but few people like to take this trouble, or to "appear small," and pay rather than have any delay. Even when they get the receipt, "paid through" may not be on it, and there is no remedy.

We are perfectly willing to give our time to naming and examining specimens for our friends; but if they are too careless to so mark the directions as to save us from the extortions of express companies, they will understand why their articles receive no notice in the magazine.

PROPAGATION OF SHRUBS.—*E. A. D., Williamsville, N. Y.* "Will you please state to a young florist the time and proper method of propagating shrubs, hardy, &c., from cuttings, as practiced in the nurseries. Also the best method for propagating box for edging. Will this propagate from cuttings in a cutting bed? I find I can root green cuttings of many shrubs, but question whether it be a good or the best way."

[There are scarcely any two kinds of shrubs that can be propagated in exactly the same manner. Some will grow easily from green wood, under glass in summer, others grow when taken off in the fall at the time the leaf ripens, and the cuttings at once put in the ground, and protected from upheaval by frost; or else put under cover to be set out in spring. Again some will grow only by being taken off in spring, and set out at once. We can help our correspondent only by his specifying the particular kind of shrubs he desires to propagate.

In regard to box edging it is easily raised by cuttings of the old wood taken in spring. Old plants are usually dug up, and the branches all split apart, without any care in regard to cutting smooth or trimming the leaves off; and these pieces are set down in the ground so that only about two or three inches are left above the ground. The pieces must be beat or trodden firmly in, in fact the earth can scarcely be made

too firm along the line of a row of newly set box edging.]

DOUBLE GLADIOLUS.—*H. B. N., Oswego, N. Y.*, says: "I have on a stem of the Gladiolus, Duke Malakoff, two flowers, which seem to indicate an attempt at being double. One contains twelve and the second contains sixteen finely formed petals. The latter is really quite a double flower. Will you tell me through your journal whether or not this tendency to form doubles is common or not? I am interested in the growing of Gladiolus, and have some two hundred and fifty sorts, but this is the only one so far that has taken this (to me) new departure."

[We have never known of a *very* double Gladiolus, and one would be highly prized by florists. It is worth while to sow seed from this, and try to fix the semi-double character more fully. There are double Lilies, double Tuberoses, and other things allied to the Gladiolus, and there is no reason why this may not take rank with them.]

FRUIT CULTURE IN THE SOUTH.—*S. T. G., Memphis, Tenn.*, writes: "The finest and thriftiest by far of all the two thousand fruit trees on my place, peaches, figs, nectarines, apricots and pears, are those which are growing uncultivated and unattended to, in my back yard, where they flourish inundated with grass, and also at times with weeds.

I am inclined to think that in the South at least, *the roots of trees must be kept cool.* My idea of the *best* way of doing this in this land of luxuriant crab-grass and parched earth, is to let the grass grow up a foot high, sprinkle a lot of a mixture of old gas-lime, livery stable manure, and cotton seed hull ashes over the sod, and then turn it over, hilling up in a circle of say six feet, letting the grass grow again and repeating the process, and then afterwards only mowing it down whenever two feet high and letting it lie.

Northern people not familiar with the South, have but a faint conception of the rapidity of the growth of grasses and weeds, the duration of their season and the positive necessity of repeated hand hoeings in order to cultivate certain crops in this country. Save green marketing, the onion raisers in Iowa need never fear competition at our hands. I had left over, this summer, some twenty odd barrels of onions, which I was compelled to ship North. They cost me in hand labor alone, in spite of all the horse labor with improved implements I could bring to bear in their culture, more than I got for them.

Compelled as we are, to use livery stable manure which is one half sawdust and foul seeds, the idea of even materially decreasing the number of weeds, etc., is an absurdity in this climate. Now as our lands are a shallow mould on a stiff yellowish, red excellent brick clay, badly in need of deeper culture and mellowing; and as this subsoil is surcharged with an astonishing amount of (now) inert plant food, and as it takes with us two years to get a good stand of clover, and as crab grass springs up like magic every where it gets a chance. What do you think of the plan I propose to adopt next year, as follows?: Abandoning clean culture, save just around such growths as demand it, letting the grass grow at will until ready to flower, by which time the roots have pierced the subsoil, digested much that would not have been available to less hardy things, and then turn the sod under as deeply as a Collins' plow and the elephantine horse I have can get it, to be repeated as often as possible. By this means I think I can ameliorate the subsoil faster, surcharge it more completely with vegetable mould, and get a better basis for *permanent fertility* than by depending wholly on manure. Besides the great per centage of labor and money saved, I believe firmly that such a mould *is far more congenial to garden truck* than that made by vast layers of manure; not so subject to drought, to worms, rotten seed and decaying or unhealthy vegetables.

Constant exposure to the fierce rays of the sun, caused by the clean culture of cotton, and the deprivation of vegetable matter, is, I contend, the main cause of the harm done our once fertile plantations. Imagine its effects in Pennsylvania and multiply this by three, then you'll have some idea of its force in Tenn., Miss., &c. *Guano put on these fields utterly ruins them in three years—burns them up*, as the planters say. Peas, grass, weeds, etc., gradually counteract the bane of the guano.

Notwithstanding the loose and rambling nature of this communication, you'll catch the ideas I mean to convey, and as they are quite important to me, at least, I hope you'll not fail to impart the necessary instruction through your journal, within the next month or so. I have been a subscriber to it for only about five months. I perceived at once that, unlike most

pen, scissors and paste editors, you are at once a gentleman, a scholar, an agriculturist in the highest sense of the term, and are possessed of not only *originality* of thought, but also of downright *talent*, two articles as honorable as they are *unusual* in the agricultural press; hence I appeal *to you* for *instruction*."

[We are obliged by our correspondent's good opinion. The editor makes no pretension to knowledge beyond his fellow laborers in horticultural literature. They have their special points of excellence. We have chosen for our task the advancement of horticulture in the line of taste and thought—as a means of mental enjoyment, as well as a minister to our mere animal wants; and if we have succeeded in this course, it is alone our reward.

In regard to the culture of fruit trees there is no doubt that a practice applicable to one part of the country is of no use, or even an injury in another. In regard to the "grass" theory, as people often call it, this is particularly true. Our correspondent has hit on the germ of the whole thing when he speaks of the necessity of a *cool surface*. Many people regard a moist surface as the one great thing to aim at: and when a clean surface is referred to, it is usually urged, as by pulverizing the soil, it keeps the earth "so moist." There is no doubt sometimes a surface covered by vegetation may be a little drier than one kept bare, but it is *cooler*, and in hot climates this is the gain. In regard to leaving coarse vegetation to grow at random over the surface, we do not think it pays. We should prefer to have grass of a kind that we could turn into hay, and make up for the loss to the soil by top dressings. This we think is preferable to turning rank vegetation down into the soil. We have nearly the same labor as if we mowed and top dressed with nothing to show for it.

There are some climates, California for instance, where the surface does not get so hot as with us, and some, as in many light soils where the surface roots grow deeper than in others. In these cases, there is little injury, and in some cases a positive gain in having a clean surface instead of one clothed with vegetation. If however, people keep their eye on the *principal points* to be accomplished, as our correspondent does, there would be much fewer errors in fruit culture than we every day see.]

BOOKS, CATALOGUES, ETC.

TRANSACTIONS OF THE RHODE ISLAND SOCIETY FOR ENCOURAGEMENT OF DOMESTIC INDUSTRY. Secretary, Joseph T. Pitman, Providence, 1871.

An interesting feature of this report, distinguishing it from others that come to our table, is a series of obituary notices of those members who have departed each season. Among the essays is an interesting one by J. H. Bourn, Vice-President, on Pear Blight. It contains much excellent reasoning, though few new facts. It strikes us that "frozen sap blight" is confounded with "fire blight," two distinct diseases.

THE DEPARTMENT OF AGRICULTURE; its history and objects. By James M. Swank, Chief Clerk of the Department.

This is a very interesting epitome of the beginning, progress, and present condition of the Department of Agriculture. It has grown to be what it is, as the author says, and is in a better condition now to adapt itself to any national want that may arise than ever before. The author while giving a history of the department is very liberal in his suggestions as to what ought or ought not to be done, and in his reflections on the deeds of those who have gone, he says:

"The botanist to whose care the collection was committed, retained his connection with the department for upwards of two years and a half, and during that time labored with zeal to create, out of the material thus furnished him, and from contributions from other sources, "a great national herbarium," or collection of dried plants. This herbarium now occupies several large and tasteful walnut cases in one of the largest rooms in the department. Whether it has ever been a benefit to the farmer, or is likely to be, are questions which have been asked fre-

quently, and concerning which the present Commissioner of Agriculture holds very decided opinions. He does not believe that the exclusive care of a collection of dried plants is the work which is appropriate to the mission of the botanist of a department organized to minister to the practical work of farmers, although such care may be proper enough in regard to a university or college herbarium. He believes that the botanist of the Department of Agriculture should be fitted to convey instruction to farmers concerning the functions of plants, their methods of growth, their habitats, qualities, uses, and diseases; in other words, that he should be a vegetable physiologist. He believes that a knowledge of the main principles of vegetable physiology, and of their specific relations to climates, soils, and the food of plants, especially when these relations are modified by the influences of culture, is of the highest importance to the farmer. A subject of intense interest to all fruit-growers and to all grain-growers is the diseases of plants. Immense yearly losses occur from these diseases. It is clearly within the duties of a botanist of the Department of Agriculture to investigate them —to throw some light upon their origin, modes of extension, condition of growth, &c. In developing new agricultural interests and sources of wealth, the botanist has another wide field for action. The Commissioner believes that it is his duty to point out, so far as botanical science can indicate, the natural families possessing principles or qualities useful in the arts, medicine, manufactures, &c.; that the hitherto unknown or undeveloped products of our fields and forests may be made to supply, so far as possible, the place of those gums, sugars, dyes, drugs, fibers, starches, oils, and beverages for which our people now pay enormous sums to foreign countries. Even if he goes no further than to aid in indicating what species of forest trees are adapted to rapid growth upon our western plains, and what grasses will best endure the hot suns of the South, he will accomplish far greater practical results for American farmers than he could ever achieve by the most careful nursing of a collection of dried plants. The present botanist of the department has taken charge of its botanical work with full knowledge of the Commissioner's views, and the hope is entertained that, while not neglecting the arrangement of such specimens of plants as may be contributed to the department, he will not disappoint the just expectations of the farmers of the country, whose interests are a thousand times more important than the gratification of the wish of any eminent scientists that the botanical division shall embrace nothing else but a collection of dried plants, and that the botanist shall spend his time in caring for it."

This is a pretty full bill of requirements, and we take it there is no one capable of filling it. Dr. C. C. Parry, in addition to being one of the best systematists, was perhaps equal to any botanist living in the department of vegetable physiology, and very few men are able to master more than two such divisions of the science. It was clearly a mistake to dispense with his services; as it is certainly a mistake in Mr. Swank to suppose that it is the wish of any eminent scientists that the botanical division should embrace nothing but a collection of dried plants, and that the botanist should spend his time in nothing else but caring for it. We happen to know that nothing would gratify "any" and all these scientists so much as to know that the department had one man capable of doing all the commissioner asks.

As to a collection of dried plants being of no use to a "farmer," of course they are of as much use as the "dried" insects in the Entomological Collection,—the "dried" plaster fruits in the museum, or even the living plants in the conservatory of the gardens. From his practical acquaintance with the working of the department, these suggestions possess value, and will no doubt have weight in influential quarters. But we think the remarks about the position of scientists in regard to the botanical division, must have been made under a misapprehension of the facts, and whatever strength there may be in the other suggestions of the pamphlet, there is surely little force in these.

A COLORED EDITION of Downing's fruits is advertised by Dewey, of Rochester.

TRANSACTIONS OF THE AGRICULTURAL SOCIETY IN THE COUNTY OF PLYMOUTH, MASS., during the year 1871. Secretary, Lafayette Keith, Bridgewater, Mass.

A good feature of this is the common sense report of the committees. Premiums are given for the best crops; and the committees report on the details of culture and soil which produced the crops. Prize essays are usually below the average information of the day, as book worms generally only compete for them; but an

essay on *drought* offers some original and apparently sound observations. A premium was offerred for the best new grape; the committee voted the premium, but added in the report that the society did not wish to be responsible for its fitness for distribution. This is a generous decision for the exhibitor; but offers of such premiums should be conditional on the seedling being probably worthy of dissemination. A report on encouraging fast horses at exhibitions comes to the sensible conclusion that the committee will discourage all kinds of gambling in horseflesh; but that a fast horse is more desirable than a slow one, and they mean to encourage speed in horses, as well as all other good qualties.

DESCRIPTIVE CATALOGUE OF PLANTS IN the exotic collection of the Department of Agriculture, Washington, D. C. By Wm. Saunders, Superintendent of gardens and grounds, 1872

The title is eminently descriptive of the work. It gives an account of the uses of the plants in the arts and sciences. Though but a small pamphlet, it is among the most useful of the publications issued by the department.

OHIO STATE HORTICULTURAL SOCIETY.—Proceedings for 1871. This society seems to have quite a flourishing list of members who pay up, besides having an appropriation of $500 from the State. In addition, the State prints the transactions. With all this aid the Society ought to get up a report creditable to the State. There is a large amount of useful matter in the issue before us.

THE SCHOOL OF CHEMICAL MANURES or elementary principles of the fertilization agents. From the French of M. George Ville. By A. S. Fesquet. Philadelphia: published by Henry Carey Baird.

There is of course no dispute in these days that plants need nitrogen, as well as manures of a mineral nature. How or in what way best to apply them is the battle ground. M. Ville, a distinguished French chemist and physiologist, professes to have experimented on the subject for thirty years, and to have embodied in this work the results of his observations. It is essential that soil should contain phosphorus, lime and potash, then with nitrogen crops will grow. Some assert that plants will take all the nitrogen they need from the atmosphere; but M. Ville shows that some will and some will not, at any rate every tiller of the soil knows that when he fertilizes with stable manure which abounds in nitrogen, there is no mistake about everything doing well, and in these instances they of course derive their nitrogen from the soil.

M. Ville recognizes the fact that analysis will not always tell what is a "complete" manure; and yet feeling sure that he has found the exact elements of fertility in a general way, he recommends on each farm a set of experiments on a small scale, with various combinations, before entering largely on any of the manures recommended. The book is cheap—$1.50 free by mail, and in the present state of the literature of the subject, will of needs have to be in every good library.

THE FARMER AND GARDENER. The Horticultural department, under the management of Mr. Berckmans, has made this magazine very popular. The proprietor, Col. Gray, dying recently, it was feared would cause a suspension, but we are gratified to learn that it is to be continued, with Mr. Berckmans as heretofore.

HOW PLANTS BEHAVE.—*Botany for Young People.* By Asa Gray.

No one has done so much to cultivate a taste for botany in America than Professor Gray; and no worker to this end has so much cause to be proud of the success of his labor than he. There is in every successful teacher some peculiar power by which he is enabled to touch the popular heart. In Dr. Gray one of these elements is a popular style. No one can write more learnedly, to use a familiar expression, when such higher class literature is to serve a useful purpose; but when the principles of science are to be taught from the beginning, his ability to reach the most common place minds is equal to his highest efforts in the accomplishments of the most intellectual life. These thoughts occur to us as we read the title page. *Botany for young people.* Too many who would teach us the arts and sciences, forget that the mind does not always grow as the body does. Though we have advanced in years, the various branches of knowledge have often been but recently born within us. Our minds are as infantile as though we were but just emerging from the dawn tide of life. Our actual years are of no account. In botany we are all "young people," and he who thus addresses us has at once the key to our attention and regard.

Dr. Gray has already told us "how plants grow," in this little book we are to learn how they behave This branch of botany, thanks to Darwin, introduces us to an almost new world. We have known for some time to be sure, that some flowers open or close at some peculiar times of the day—that some plants as in the "sensitive" have peculiar motions simulating nerve action in animals; that others as in the fly trap close their leaves over, and entomb insects; but since Mr. Darwin's observations on the movements of tendrils, and the agency of insects in cross fertilization, a species of intelligence has been discovered in vegetation that no one supposed possible a few years ago. Flowers, always dear to the human heart, have been brought nearer to us, and they feel more a part of us than ever before. Many have been amused at the fancies of the author of the "*Botanic Garden.*" There was of course more poetry than truth in the "how plants behave" of that old work. But the "loves" and "hates" of the flowers, as depicted by old Dr. Darwin, are not more wonderful than real undertakings which they actually engage in.

We have only one regret as we lay the little book down. There is not enough of it to satisfy the taste created. How plants behave might fill a book as large as an encyclopædia. We suppose it would be a labor of years to accomplish such a work as that. Indeed the half of what they do is not yet known. The wisest are only beginning to learn. It may be many years before we get their full history. In the mean time we take the interesting glimpse Dr. Gray here gives us of the promised land, and thank him highly for the favor.

NEW AND RARE FRUITS.

BLACK'S EARLY PEACH.—Dr. Stayman of Kansas describes as: Fruit large; form round, with a slight point; suture distinct, shallow all around; color, clear rose pink, shaded maroon and slightly mottled with light yellow, very handsome; flesh stained red to the seed, to which it slightly adheres; juicy, tender, with rich sub-acid; excellent. Stone small, short, light red; quality the very best; season, July the 4th to the 15th. Tree good grower, hardy and productive. An accidental seedling found amongst a lot of trees set out on our farm, 1867.

This is the earliest peach we are acquainted with, ripening this season before the 4th of July, being from ten to twelve days before *Hale's Early*, and it is of larger size and better quality.

Its extreme earliness, great beauty and fine quality will always make it command the very highest price in the market.

We have sold four times as many of it as Early York, and at double the price at the same time, 14th of July, this season.—*Rural New Yorker.*

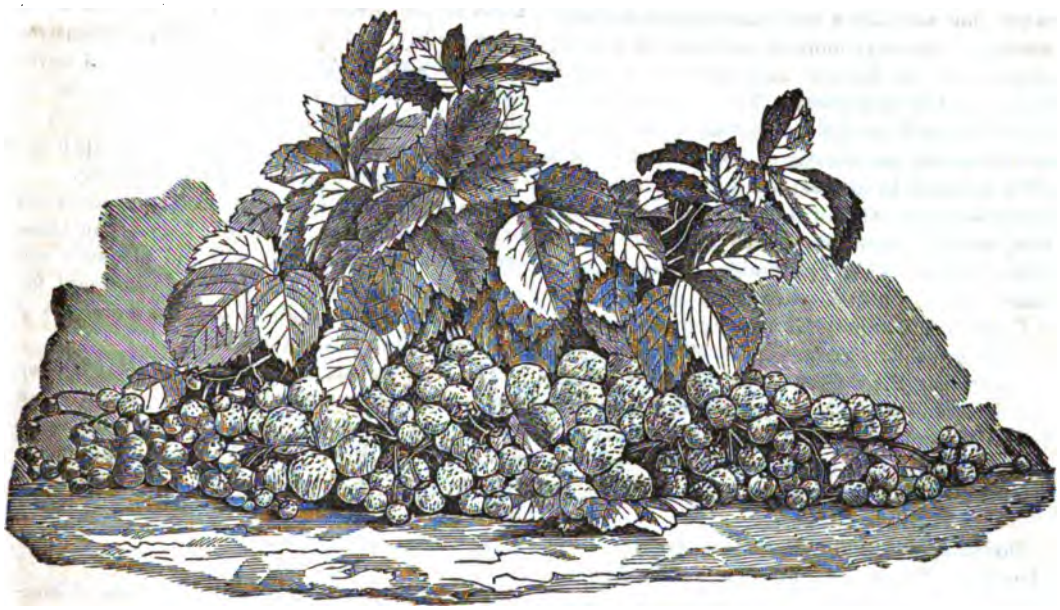
PETER WYLIE, NO. 1 GRAPE.—We have from Dr. Wylie, July 31st, a bunch of this new grape, which reached us in excellent condition. It weighed half a pound. It is a white grape; or as some of our modern critics would say, a green grape. The berries are about the size of the Royal Muscadine, and the flavor so delicious, that if we could always depend on its doing as well as this in the open air, we might shut up our cold graperies at once. Though the skin is as thin, and the appearance much as a foreign grape, it still retains somewhat the firm flesh of the American parent; and it also has, but in a less degree, the peculiarity of dropping some of its berries easily from the stems, after a long voyage.

When we remember that much of the ridicule with which the position of the *Monthly* that grapes could be hybridized, was assailed, occurred but twelve short years ago, and that some of the strongest papers showing how "impossible" it was that any hybridization could be accomplished in the grape family, came from southern sources; it is a pleasure to note that success, the best tribute to possibility, has been so generous to a southern gentleman.

FOX SEEDLING PEARS.—*Mr. B. S. Fox, San Jose, Cal.*, writes: "Thankful for the kindly notice—sorry you did not put the number with it, as by the enclosed diagrams you will notice

that there are a great many of them, which I consider really good, far better than many of the European new varieties. Nos. 11, 17, 62, 65, 111 are pears, which will fill up gaps in the ripening season, and to the orchadist will be valuable. In the first place they are good, and next they are of, or nearly so, a yellow color, which is everything in the pear market. A green pear like Couseiller Ranuez, or Beurre d' Amanlis, or Dunmore, are not good for market—no money in that class of pear. No. one hundred and eleven, after you pull it from the tree, becomes yellow, remains so until ripening, and turns brown. F. D. Atherton, Esq., one of our Col. Wilder's in the pear line, says it is delicious."

[We did not put the number 111 after Mr. Fox's delightful pear, supposing that was only a temporary designation. Mr. Rogers sent out his hybrid grapes under numbers, and was always sorry for it. We recommend new seedling fruits when likely to be distributed, to be named not numbered.]



BROWN'S WONDER STRAWBERRY.

NEW STRAWBERRY—BROWN'S WONDER.—Under the name of *Merveille de Brown*, M. Verschaffelt, of Brussells, gives a plate of a new strawberry which we reproduce here, in order to show our readers that if America can produce wonders in this line, Europe has her marvels also. M. V. says that this variety leaves far in the rear all other varieties in the abundance of its fruit. He declares that the picture is an exact *copy of a photograph*, emphasising the statement by italics, and further, that this was a plant cultivated in a market garden under ordinary circumstances, and that many other plants were as abundantly "charged" with fruit as this one chosen as an illustration. People will want it of course. "Elle demande seulement a être connue pour être appréciée."

The plant is probably not in this country yet, and perhaps may never be; and even though it may, will probably not yield as represented here; but we give the plate in order to illustrate what our French brethren know about strawberries.

FORD'S HOOSAC THORNLESS BLACKBERRY is highly spoken of by a Western paper: "For prolific production, and sweetness of taste, it rivals all varieties of which we have knowledge."

SEEDLING APPLE.—*S. T. B., Doylestown, Pa.*: The apple is of fair size and good quality; but not in our opinion superior to Early Harvest, which it much resembles. We would not recommend naming and distributing it, unless it can be shown to be superior in some respects to those we have.

NEW AND RARE PLANTS.

NEW MIGNONETTE.—Parson's white is not white, but still it is a well marked and valuable variety. They pay more attention to cultivating Mignonette in Europe than we do—a single plant is taken and *grown*. This gives an opportunity to mark the different habits of the variety, as well as any peculiarity of flower, and there is often as much to interest one in the form of the plant as in the color of its blossoms. There are now several new ones with distinct habits. There is the "tall" pyramidal which is of a lance ovate outline when fully grown. The "Pyramidal Bouquet" is broadly ovate, near the form of a fashionable bouquet. The new dwarf compact has the spikes of flowers with a blunt termination, instead of the narrow tapering form of most mignonettes. This gives the plant a massive habit. It appears rather a bunch of mignonette than one growing plant,

DOUBLE EPIGEA.—Prof. Asa Gray, in the *American Naturalist*, notices a double-flowered *Epigeæ repens*, received from Arba Pierce, of Worcester, who has gathered similar flowers from the same plant for several years. The doubling comes from partial conversion of stamens into petals, of the outer and most transformed series, more or less coalescent into a tube.

CEREUS GIGANTEUS.—The following extract from an officer of the United States army gives some interesting facts in regard to the giant cactus of Arizona: "I enclose a paper of seeds of the Sujaro, pronounced 'Suwarro.' This is the giant or candelabrum cactus of the Gila river, Arizona. It grows to thirty or forty feet in height, sometimes as a single, nearly cylindrical column with a diameter of twelve to twenty inches, sometimes as a candelabrum with branches. It is stated in the report of explorations of the Mexican boundary, that the seeds grow readily, and that they have been extensively distributed in America and Europe. I never saw a plant except in Arizona, and on a visit to that desert country last winter, I left orders to collect and send me seed at the time of ripening. The fruit is valued by the Apache Indians.

It is one of the most remarkable productions of the vegetable kingdom, and I send you these seeds, believing that you will find pleasure and profit in propagating it. It is an ornament for the greenhouse, though in our hot summers it will bear being put in the lawn.

The temperature in its native habitat is often above 100°, and seldom below 60°. It grows in sandy and stony soils, and also on table lands and foot-hills of the Arizona mountains, where the winter temperature must be occasionally below 32°. These seeds were gathered at Camp Date Creek, this season.

NEW CLEMATISES.—New hardy free-flowering Clematises, well adapted for covering verandahs, trellis-work, walls, porticoes, pillars, festoons, &c. Several varieties were awarded a first class certificate by the Royal Horticultural Society. C. Thomas Moore, pucy-violet, white stamens, passiflora-like. C. Mrs. James Bateman, pale lavender, fine. C. Viticella Rubra Grandiflora, bright claret-crimson. C. Alexandra, pale reddish violet. C. Velutina Purpurea, rich blackish-mulberry.

FREEMONTIA CALIFORNICA.—This beautiful American shrub, not yet even introduced into our collections, is reported as flowering in English nurseries. It is allied to the Althese of our gardens.

DOMESTIC INTELLIGENCE.

NEW EARTH WORM.—In connection with the subject of introducing new enemies to plants from abroad; it may be advisable to mention that at the present time a very large and apparently new species of earth worm, thought to have been first introduced in the earth in which some Japanese plants were imported in the expedition under Commodore Perry, has increased and multiplied in the hot-houses so much as to have become a veritable nuisance. This worm is probably the same mentioned in the English *Gardener's Chronicle* of April 24, 1869, by D. T. Fish, F. R. H. S., under the name of the eel worm, its habits and appearance being almost identical with that in the hot-houses of the Department of Agriculture. Mr. Fish, after stating that it is very injurious to plants in pots, and had been known for twenty years, says that it is "probably a tropical relation of the common earth worm, as it cannot live out of doors in the climate of England and scarcely subsists in a green-house, but revels in the temperature of a plant-stove or orchideous house. It differs from the common worm in its mode of locomotion and in several of its habits. It comes out at night on walls, stone floors, &c., and is as quick as an adder in its movements when disturbed. It seems impossible to eradicate it; it appears to breed with extraordinary rapidity, and is endowed with great muscular power, so much so that it is somewhat difficult to hold a large specimen between the thumb and finger. Lime-water, which is a sovereign remedy against the common earth worm, appears to have little influence on it, and the only effective mode of destruction is to turn out the soil from the pot and catch and kill the intruder, taking care, however, not to knock or jar the plant, as this worm, instead of coming to the surface on being disturbed, like the common worm, will instantly recede to the centre of the ball of earth and remain there undisturbed." In a later number of the *Gardener's Chronicle* for 1871, page 468, Mr. W. Baird speaks of a worm under the name of *Megascolex* (*Perichæta*) *diffringens*, found in three different gardens in England, in hot-stove houses, which is probably the same worm as the eel worm referred to by Mr. Fish.—*Report of Department of Agriculture.*

LIATRIS ODORATISSIMA, *Willd.*—This plant, which is a native of the Southern States, has been the subject of some recent inquiries. It grows in low, sandy woods, from Southern Virginia to Florida. It is known by several local names, as wild vanilla, deer's tongue, and sea lavender. The leaves have a strong vanilla odor. The plant grows three to four feet high, with a simple, straight stalk, terminated by a corymb of bright purple flowers. It belongs to a genus which is represented by eighteen or twenty species in the Southern States, none of which are specially odorous except this one. Several species are found in the Northern, and several in the Western States. They all have showy purple flowers, some of them in long spikes, and are known by several local names, as button snake root, blazing star, etc. The leaves of the first-mentioned pecies (*L. odoratissima*) have been employed to give a pleasant fragrance to tobacco and cigars. They are brought to market in small bales. The lower leaves of the plant are about six inches long by three inches broad. It is said to be very abundant in Flor'da. We are not informed as to the market price of the leaves, but do not doubt that it depends much upon their mode of cure and their soundness. For wrappers of cigars the leaves would need to be sound and unbroken.

Probably, if the plant were submitted to cultivation, and the stalk cut back so as to favor the development of large leaves, it might be improved in quantity and value. We would be glad to see its use extended, for it has no hurtful properties, and since it improves the flavor of tobacco, the more of it employed in the manufacture of that article the better.

STRAWBERRIES WITH POTATOES.—A disadvantage connected with the common mode of planting strawberries, is that the ground remains idle the first year, while the plants, which have been set in the spring, are becoming strong and well established, preparatory to bearing the principal crop the second year. If some other crop could be grown early in the season, so as to receive a return from the land while the young strawberry plants are coming on, and moreover

pay for cultivating and keeping the ground clean, an important point would be gained. N. P Hedges describes his method for accomplishing this end, in the *Germantown Telegraph*, by planting early potatoes. He first tried peas and other crops, but generally a poor stand of plants was obtained, so that a good crop could not be had till the second year, when weeds, which the cultivator abhors, had obtained large ascendency But no difficulty exists with early potatoes, and the best plantation he has seen was raised in this way—doubtless because he was compelled to set them out early and the plants thus obtained a good start. The ground was first handsomely prepared by plowing and harrowing, the Early Rose potato planted in hills 30 inches apart each way, and the strawberry plants also the same distance, alternating in the rows with the potatoes, that is, 15 inches from each potato hill. A one-horse cultivator and hand hoe kept them perfectly clean. The potatoes were dug in July, leaving the strawberry plants in full possession just as they were beginning to throw out runners. The additional care of the strawberries was estimated at $20 per acre. One full crop of berries free from weeds is enough ; more might be had, but the labor of keeping clean by hand is much more than preparing the ground by horse labor and re-planting.—*Country Gentleman.*

FOREIGN INTELLIGENCE.

Forest Renovation in Dalmatia.—Allow me to offer some remarks concerning the undertaking of our Ministry of Agriculture in laying out woodland on the Karst in Dalmatia, of which I beg leave to subjoin some ground plans.

At the exhibition of agricultural and forest seeds, held on December 12, 1871, at Vienna, much attention was excited by a collection of seeds of 60 varieties of forest trees, exhibited by the director of the Central Nurseries. These nurseries are devoted to the raising of trees and shrubs to restore the Karst as a forest. I succeeded in obtaining full information concerning these establishments from the Minister of Agriculture, who gave me on that occasion five plans of the Central Seed Schools established for this purpose.

The Karst is now almost devoid of any vegatation, and is covered, for the most part, with larger or smaller pieces of chalk-stones, of a cold greyish color, remarkably perforated, and often in a decayed state, from the rough climate and the dreadful "bora." Only in the funnel-shaped valleys (called Dolinen) is any vegetation to be found. This is partly natural, partly raised by the hand of man, who turns to use every available spot of ground in the vicinity of his wretched domicile.

A beginning with this plantation has now been made, and I do not doubt but that success will crown the effort if only continued with perseverance. As a proof that on the rocky surface of the Karst woodland can exist, I may mention the deer garden of the Princess of Hohenlohe, at Duino, the ancient and charming castle of which crowns a picturesque rock rising up out of the blue sea, and which may be observed even at a distance from Trieste or Miramar. Not a blade of grass is to be found in the whole park, but Datura Stramonium appears in places where the Quercus Ilex, and the Carpinus Betulus var. duinensis (Tomasini) fail to spread their sparing shade. The deer kept in the park are fed in an artificial manner. The appearance of the whole park is very peculiar, somewhat sad, and I never before saw a similar one.

The five nurseries, laid out for the purpose of producing plants for the Karst, are placed in different places and at different elevations on the mountain, to adapt them the better for their future locality.

The three first are situated on Monte Sermin, near Capodistria, on the sea-shore. Here are produced seedlings fit for the lower countries, to about an elevation of 500 feet above the level of the sea. The ground in this region consists chiefly of chalk sparingly mixed with a reddish ochrey clay. More than 2,000,000 of seedlings are here in readiness, amongst them 678,283 Fraxinus Ornus, 83,854 Pyrus communis, 712,529 Robinia Pseudo Acacia, 153,689 Pinus austriaca, 75,928 Hibiscus syriacus, &c.

The richest of these nurseries is that at Gorz, where more than 5,000,000 of young plants are in cultivation. The tree most cultivated there is Fraxinus Ornus, with 3,616,345 specimens; Tilia, 149,530 ; Ulmus campestris, 397,348 ; Morus

alba, 9675; Castanea vesca, 4415; Prunus Avium, 7876, &c. The nursery ground lies on a level, and its soil is of a clayey, gravelly nature. The plants here grown are used for planting out the rising ground of the Karst which surrounds Gorz.

The nursery of Rodik is situated on a plateau of the Karst, where the ground as well as the climate is of a very rough kind. Only coniferous plants, such as Abies excelsa, Larix europæa, Pinus sylvestris and austriaca, are here cultivated to the number of 3,064,941. They are selected for the region from 800 to 2000 feet above the sea.

The pecuniary value of the seedlings, numbering about 10 millions, is estimated at 18,060 florins. One hundred Ailantus are reckoned as equal to 5 kreuzer (about one penny), 100 Pinus austriaca (two years old) at 40 kreuzer, &c. One of the curiosities on the Karst consists in the imperial stud at Lipizza, where a beautiful race of horses is reared for the use of the imperial court. It is an oasis in the desert, and occupies a space of ground of 530 acres of beautiful meadows and woods. The principal sort of trees of which the wood consists are Fraxinus Ornus and Quercus Cerris, mixed with Acer monspessulanum.—*Cor. of Gardener's Chronicle.*

Evaporation on the Farm.—It has been calculated, that from an acre of ground, during twelve hours of a summer day, more than *sixteen hundred* gallons of water have been drawn up into the air in the form of vapor.—Dr. Dick.

New Use for Cats.—A correspondent of *Land and Water* writes: "It often appears to me that people for the most part are not aware of the great use cats are to us. Of course, we know of their use with respect to mice and rats, but do we generally know of the invaluable help they can give us in protecting from birds our garden fruit and flowers? The late heavy rains this spring have given us the promise of abundance of Strawberries, and in the south, at least, the bloom is magnificent. To keep off the birds how simple, how certain, how small is the cost of a cat on a small chain sliding on a wire, and giving the animal the walk up and down the whole length of the Strawberry beds. A knot at each end of the wire readily prevents the cat from twisting round the post which supports the wire, and a small kennel placed in the middle of the walk affords her a shelter and a home for her kittens. In large gardens a second cat is required; and the young ones in their frequent visits to each other greatly assist in scaring away the birds. I have for more than thirty years used, and seen used with perfect success, this easy method of protecting fruit, and the very same plan is equally good in keeping hares and rabbits off flower beds. After the first few days cats in no way dislike this partial restraint, and when set quite free, after a few weeks' watching, they will of their own accord continue on guard. The kittens, more especially, attach themselves to this garden occupation, and of their own accord become the gardener's best allies."

The Best Roses at the London Horticultural Society Show.—In class 43, Mr. B. R. Cant is first with 48 superb cut Roses, of large size and full substance. The following were extra fine: Mdlle. E. Verdier, Marquis de Mortemart, a beautiful white Rose; Horace Vernet, Barronne de Prailly, salmon pink, very fine; Marie Baumann, Duke of Wellington, Black Prince, Elie Morel, Marguerite de St. Amand, Ferdinand de Lesseps, Antoine Ducher, Abel Grand, Prince Camille de Rohan, Fisher Holmes, Mons. Noman, Beauty of Waltham, and Mdlle. Therese Levet, all hybrid perpetuals. The following Tea Roses were also good: Marechal Niel, Souvenir d' Elise, La Boule d'Or, Souvenir d'un Ami, and Rubens. Messrs. Paul & Son, Cheshunt, were second, with Oliver Delhomme, Madame Laurent, Marie Baumann, Paul Verdier, Xavier Olibo, August Newman, Francois Louvat, Alfred Colomb, Beauty of Waltham, General Jacqueminot, Duc de Rohan, Dupuy Jamain, Marie Rady, Souvenir d' Elise Vardon, and Marie Van Houtte, very fine, the two last named being Tea-scented varieties.

About Glass.—A correspondent of *Gardener's Chronicle* says: On wading through the sea of mud and water that has flooded the implement department of the great show of the Royal Horticultural Society at Birmingham during the early part of the past week, one could not but note how busy and active the spirit of change was among our horticultural buildings; year after year—one might write generation after generation—hothouses continued as they were. The price of glass arrested the spirit of change, it was pre-eminently a thing to be touched as lightly and handled as carefully as possible; give it a rafter like a roof-beam or sash-bar like

the girders of a ship, putty enough to bed a brick securely, lest by any means the glass should slip or be taken to pieces. The primary object was to save your glass. Use it you may, said the whole structure arrangements of glasshouses, but preserve it you must. That was the old saw, now superseded by the new thought of how to turn glass to best account; hence all sorts of contrivances, good, bad, and indifferent, but mostly good, to turn glass to better purpose and apply it to new uses. The Crystal Palace gave a wonderful enlargement to our ideas concerning the capacity of glass. Nothing could be too great for it to accomplish. The roofing in of large areas was the one thing thought of. Now the current has fairly set in the opposite direction. True, we build more and larger houses than ever, but every builder has likewise his handy contrivances for everybody and everything. This is well illustrated at this exhibition. Each end of the show of houses is flanked with small sections or houses of small size, distinguished by more or less novelty. Invention is busiest on this tack. But then these small houses grow. We have also a capital illustration of this truth here. When they first appeared at these provincial shows, the houses of Mr. Thomas Bickly, of Moseley, Birmingham, were small and far from perfect; but now they have grown into fine houses of all forms and sizes. Possibly a similar career of usefulness awaits the new sash-bar for house building or skylights exhibited by Mr. Warren Sharman, of Melton Mowbray. It is an ingenious application of zinc and glass to cover as much of the wood as possible. At the other end of the exhibition, Mr. Parker, of Bath, shows his patent channeled rafter applied to the glazing of glass walls, small houses, frames, &c. All drip and rain finds its way into these channels, and from thence into the water-trough. The glass is laid on the raised side of the rafter, and kept in position by covering bars of the same length, and the latter are kept firm by the use of elastic steel springs, fastened down with brass nuts. These springs are said to be sufficiently elastic to prevent the two iron surfaces from breaking the glass. This differs from Beard's patent only in the channeled rafter, the dispensing with felt or other elastic buffer between the iron and glass, and the employment of the steel spring fastenings.

THE *Revue Horticle* announces the appearance of a Double White Zonal Pelargonium, lately obtained by a nurseryman at Toulouse, who has disposed of his stock to M. Boucharlat, of Lyons. The plant in question is a sport from Beauty—a single flowered white variety with a pale flesh colored centre.

THE FALL OF THE LEAF.—Is explained by De Candolle thus: The increase of the leaves both in width and length, that is, their full expansion, is generally a rapid process; for a time the leaves exercise their varied functions, but all this while the process of denudation is silently going on. They exhale perfectly pure water, and retain in there tissues the earthy matter carried up by the sap; and in consequence of this the vessels harden and the pores become obstructed; this goes on during the season of their growth, and, according as evaporation is more or less active, so are the leaves approaching the limit of their existence; they gradually dry up and die. But this death of the leaves must not be confounded with their falling, for the two processes are distinct; the death of the leaves results from the choking up of their vessels; they then change color, cease to decompose carbonic acid and absorb oxygen, become unhealthy, and die; but the living tissue at their base still continues to increase in size, and thus the dead or dying leaves are, as it were, forced outwards and thrown off. Du Petit Thouars gives another explanation: "If," he says, "we watch the progress of a tree, we shall perceive that the lowest leaves fall first;" and this he explains thus: "The base of every leaf reposes on the pith of the branch, to the sheath of which it is attached; but as the branch increases in diameter by acquiring new wood, the space between the base of each leaf and the pith becomes sensibly augmented; and, in consequence, the fibres, by which the leaves were connected with the pith, must have necessarily lengthened, in order to admit the deposition of wood between the bark and the pith; the bundle of fibres being at first composed of spiral vessels only, it is easy to conceive that they will be susceptible of elongation by unrolling. The time will, however, arrive when these vessels, being entirely unrolled, are incapable of further elongation, and they will therefore, by the force of vegetation, be stretched until they snap; when this takes place, the communication between the branch and the leaves will be destroyed, and they will necessarily fall off."

FOREIGN CORRESPONDENCE.

LIVERPOOL, *July 25th.*

Strangers arriving here should not forget to cross the Mersey to Birkenhead, see the town and the Park. They must not expect to see New York Central Park with its floral treasures and architectural adornments, but a plain, common-sense park, just adapted to the wants of the people. There is an air of rural and pastoral quietude about it, with its sheep and kine reposing or quietly grazing and fattening on its rich herbage. I called on Mr. Kemp, who still has the supervision, but unfortunately he was out, but I was amply repaid by a peep at his house and garden. Out of the drawing-room window you look on a little lawn, not more than the eighth of an acre, with five or six small circular beds cut in the turf; but in that confined space what a blaze of beauty! The calceolarias, lobelias, tropœolums, scarlet geraniums, &c., sparkled and seemed almost to dance with delight as they basked in the sunshine on that rich green velvety turf. Very little alteration has been made in the park since I saw it last in 1851, but the trees and shrubs which then you counted by inches you must now count by feet and yards. Called on Mr. Skirving, had quite a chat with him. He is a fine hale hearty old gentleman. He was in trouble about his turnip seed crop. They are in the midst of the harvest now, and it is *rain*, rain, rain—he expects to lose half the crop. I inquired what quantity he raised, he said they had grown as much as four or five thousand bushels, but not so much this year. I told him the losses we had sustained in the northern States the past winter. He said he could sympathize with us, as in 1860 he lost in one night about £3,000 ($15.000), chiefly in evergreens. It discouraged him, though it may occur again; and in a good many of the quarters where they grew those fine deodars, auracarias, &c., you will now see cabbage, turnips, &c., planted for seed. The best collection of hollies in the country, I presume, is here. They have about fifty varieties, at least half are quite distinct; they range from one foot to fifteen or eighteen, perfect specimens. Cryptomeria elegans I saw here for the first time; but the finest tree in the whole nursery is a large specimen of the variegated turkey oak. Is this hardy with you? If it is you cannot propagate too much of it. In another decade this nursery will be a thing of the past, as the town is built close up to it. There is one thing American nurserymen would profit by if you would adopt it, *i. e.* plant more evergreen hedges for shelter round the tender things in nursery quarters.

Merediths Nursery, the "Vineyards," Garston, forty minutes by "bus," is well worthy a visit from grape growers. About ten span roof houses, from forty to one hundred feet. Bulk of varieties grown: Black Hamburg, Muscat of Alexandria, Lady Downes and Barbarrosa price per lb. just now, 5s. ($1.25.) The finest house of Muscats I ever saw is here. Mr. M. intends sending over to your Pomological or some other exhibition, a few bunches for competition; if he does you will have to look out for your laurels, as he will have bunches of Hamburghs and Muscats by the 1st of September, that will go over four pounds. My opinion is the same now as it was when here (in England) last, twenty-one years ago, that the way to grow grapes to perfection is to grow them in separate houses. They have some splendid young plants in three gallon pots, $5.00 each for fruiting, next year intend them to carry from eight to twelve bunches. Nothing striking in the plant line except *Dracœna reginæ* and Maranta Veitchii, both fine. Price of Dracœna, about $15.00. Saw some good Pansies here for this season—Viola cornuta, Clevedon yellow Magpie, probably Mr. Dreer has them, if not tell him to get them, as they stand the heat well.

Liverpool botanic gardens must not pass unnoticed, if it is only to see and admire the perfect order in which they are kept. I have never seen public or private gardens in better keeping Twenty minutes from the centre of the town. Steam-car two cents, walk after, ten minutes; entrance on foot through Wavertree Park. In entering, (being very level ground), there are low mounds raised up like Birkenhead Park, the first thing that arrests the attention is several small circular beds about four feet in diameter, filled with *Echeverias*, four or five varieties in a bed; and these beds are perfect gems. Take a centre plant one foot high, and grade them down to the outer edge to a row of the tiny ones not an inch high; then they are arranged in patterns (the plants), some stars, some circles,

others segments of circles, they thus form a very striking and unique feature; and in your climate you can adapt them to the same purpose for rock work, &c. Pass on and here are some fine masses of the Furze, (Ulex Europœa), beds of Gaultheria shallon, hardy Ericas, Epimediums, &c. On the left a fine mass of Hollies, plain and variegated, twenty-five feet high, faced with a thick belt of the Scotch broom. The botanical arrangement of the hardy plants is very convenient; they are planted in groups under the outer wall in classes and orders, with a belt of grass between the walk and the beds and borders.

Among many other hardy herbaceous plants, I noticed Digitalis macrantha, (a very distinct sport), Viola lutea grandiflora, Saxifraga incrustrata, Saxifraga aizoon compacta, Astrantia carniola, Pulmonaria macrantha, Convolvulus pubescens, Plantago major rosea, (fine), ditto P. serpentinus; also a most remarkable looking plant, Hablitzia tamnoides, with flower spikes of greenish white flowers, five or six feet long.

Passing through the houses, saw one or two plants of Caladium Lowii, (beautiful), Begonia Pearcei, (yellow), ditto Chelsonii, (good), Hymenoides crinitum, (curious). Among the *Cacti*, *Mammillaria rhodantha sulphurea*: Haworthia tessellata, Aloe planifolia, Gasteria angulosa, Opuntia carasavica. Ferns: Nipholobus lingua, Polystichium Veitchi venustum, Scolopendrium, several distinct varieties of officinarum Lepicystus sepulata. Hopolepsis vaccinifolia and Anapetes Lycopodioides, two good trailing plants for rustic stands and baskets. Eranthemum tuberculatum, white. (good florist's plant), also some fine plants of Pancratium grandiflorum.

What surprised me most there was the extent and beauty of the flower garden. There are two or three strips, three or four hundred feet long, and fifty wide, with scores of different shaped beds blazing with bloom. These beds are in sunken panels, or rather the beds are raised up a foot high, with belts of turf fifteen inches wide at the top; the pathways, all in grass, from two to three feet wide, with a broad gravel walk passing round the whole—the effect is charming. There is a museum and small library. The curator was out, so I did not see the herbarium. Among the books, I noticed the Botanical Magazine, (92 Vols.), Botanical Cabinet, (19 Vols.), English Botany, (36 Vols.), with four large supplements, De Condolle's Prodromus Systematis Natuluris, (14 Vols.)

This garden contains about eleven acres; they are the property of, and are maintained by the Liverpool Corporation, which deserves the highest credit for the liberal manner in which they are endowed and maintained. J. W. W.

HORTICULTURAL NOTICES.

PENNA. HORTICULTURAL SOCIETY.

The annual exhibition of the Pennsylvania Horticultural Society is to be held at Horticultural Hall, Philadelphia, from September 17th to 20th. This is always a sort of gala time with horticulturists all through the Union who meet here and exchange gratulations. The premiums are larger in amount than heretofore, while the "glory" of exhibiting before ten thousand Philadelphians who are interested in fruits and flowers, always attracts even those who look on exhibitions from a mere advertising point of view. We understand that Kansas intends to stir up the horticultural lion again with her majestic fruits; but she is not to try it alone this time. The "Northern Pacific" promises to contest with her. Nebraska might do it, but is probably too sleepy to wake up to the importance of the task. She somewhat astonished herself by her success at Richmond, and will probably rest satisfied with this single laurel leaf.

Since the above was in type, we learn that there will probably be no annual exhibition this year. Large as the great hall is the contributions pour in from all parts of the country, and the concourse of visitors is so large,—on some occasions nearly ten thousand a day, that the managers have determined to *double the capacity* of the building.

Latest.—As we go to press, we learn that the Society has just decided to hold the Exhibition on the 15th, 16th, 17th and 18th of October.

WISCONSIN STATE AGRICUL'L SOCIETY

Is to hold its annual meeting at Milwaukee on 23–27 September. Many liberal premiums are offered for fruits and flowers.

BLOOD-LEAVED PEACH.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XIV. *OCTOBER, 1872.* *New Series, Vol. V. No.* 10.

HINTS FOR OCTOBER.

FLOWER GARDEN AND PLEASURE GROUND.

A friend, recently returned from Europe, which, for the first time in his life he has visited, says he is almost ashamed to use the word flowers again after what he has seen in the whole world the past season. But our friend should not lose heart. The love of flowers is assuredly growing with us, and will continue to grow as we learn how great is the pleasure which their culture affords.

There is probably no branch of gardening more pleasing than that which embraces hardy bulbs. They come into flower so early, and grow with so little care, that every one may grow them at a small cost. Of those which may be planted this month are Hyacinths, Tulips, Crocus, Narcissus, Japan Lilies, Anemones, Ranunculus, Crown Imperials, Snowdrops—among the better known varieties. All of these prefer a soil that is rich and not dry, but by no means a wet soil. The Tulip, Anemone and Ranunculus will do better in a dryer soil than the others; but the two last do not do well where the sun will shine directly on them when in flower. In planting these in the flower beds, it is well to set them so that spring-planted flowers for summer bedding can go between them. Where some loose litter can be had, it may be used to cover the bulb ground with. It prevents thawing of the soil till the warm spring rain comes; and we presume our readers know that it is the repeated thawing which "draw" the roots of things out in the late winter months, and leave them bare to the sun, and to their great injury.

Many kinds of hardy annuals flower much better next spring, when sown at this season of the year. A warm, rich border should be chosen, and the seed put in at once. Early in spring they must be transplanted to the desired position in the flower bed.

Many persons complain that they cannot get the Pansy to produce flowers as handsome as they see them represented in seedsmen's plates; but it is because they are not sown early enough. If not already done, sow them at once,—if they can have the protection of a cold frame all the better. These cold frames are very useful in small flower gardens. There are many little things pretty hardy, but which are much better with this protection. Many people have much difficulty in keeping over choice kinds of roses, such as Teas, Chinas and Bourbons. But if these are lifted from the ground early in October and set thickly in a cold frame, they can generally be kept very well. It is not so much the degree of frost which injures them, as it is the drying influence of the frost; and the frame aids in the prevention of evaporation. We know of a rose grower who keeps the tenderest of roses in pots in a house without any fire, though the temperature outside goes below zero, and the roses are frozen solid most of the winter. But he waters as regularly as through the summer, as the frost dries so. He finds even the tenderest to get through the winter in this house as well as if there were no frost.

Summer flower bulbs must be taken up at once for winter protection. A cellar, secure from frost, is the best place. Here Caladiums, Tuberoses, Gladiolus, Tritomas, Dahlias, Tigri-

dias and similar things, which do not like frost, may be preserved. The Pampas grass may also be kept in a cellar, if fitted into a tub or large pot, and not kept too warm or wet. Usually they will keep out of doors if dry leaves be put thickly over them, and a box put over to keep the leaves dry; but many were lost in this way last winter.

Tree seeds should be either sown or prepared for sowing in the fall. Hard shell seeds require time to soften their coats, or they will lie over a year in the ground. It used to be popular to mix with boxes of sand; but unless there be very few seeds to a very large quantity of sand, the heat given out, though perhaps imperceptible to us, is sufficient to generate fungus which will destroy the seed. It is much better to soak the seeds in water, and then dry just enough to keep from moulding, and as cool as possible all winter. This is a much safer plan than sand. In States where the frosts are severe, seedlings of all kinds that have not attained a greater height than six inches, should be taken up, "laid in" in a sheltered place thickly, and covered with any thing that will keep frozen through the winter. If left out, they are liable to be drawn out and destroyed. Young seedling stock received from a distance, should be also so treated. In the more Southern States they may be set out at once,—and as much planting as possible be accomplished that will save spring work. Many cuttings will not do well unless taken off at this season and laid in the ground under protection, like seedlings,—the quince, syringas or lilacs, spiræa prunifolia, and some others. In the "mild winter States," evergreen cuttings should be made now, and set out thickly in rows. The leaves need not be taken off, but short, thick-set branches laid in under the soil. When rooted next fall they may be taken up and divided into separate plants. In more Northern States, evergreens may not be so struck at this season, unless protected by greenhouses and frames. Where these are at hand, evergreens may be put in, in boxes or pans all through the winter.

All trees transplanted in the fall should be pruned considerably. The experience of the past winter taught that in all cases such trees wintered better than those not shortened in. There may be some cases where so much of the root-mass has been saved that a shortening is not absolutely necessary; but still there will be found a benefit to result from it.

One of the most charming things in the world is American autumn scenery. It is a good exercise to observe the various tints of the fading leaves at this season with the view of reproducing unique effects on our grounds. Little of this has been attempted by our garden artists on any very tasteful scale. Our friends visit Europe and are astonished at the extent of floral art as developed in summer gardening; but our summers are too hot to enjoy this kind of gardening very much if we had it. But we might make a glorious thing of American Autumn Gardening if we were to turn our attention specially to that, and it would come at a season when we could heartily enjoy it.

In planting trees or shrubs, be sure to press firmly in the ground. The heel is not force enough. We urge a good pounding. People often fear to bruise roots by this hammering process; but there is much more danger from a too loose soil. In a recent issue we advised to plant deeper or shallower according as a root might be woody or fibrous, and especially referred to those things with hair like roots, such as rhododendrons or azaleas, which should be rather set a little above than a little below the roots. The *Country Gentleman*, quoting this, remarks that the depth should also be varied with the nature of the toil. The correction is well timed. The heavier, and the wetter the soil, the more near the surface should all things be planted.

GREENHOUSE.

The taste for cut flowers is considerably increasing, and one of the greatest demands on a greenhouse in winter, is from the best half of the head of the household for room and table decorations. Beautiful specimen plants are not so highly valued as those which will afford plenty of bloom for cutting. The various kinds of zonale geraniums are very good for this purpose. The following also comprises very useful plants for this purpose: Bouvardia leiantha, Calla Ethiopica, Cestrum aurantiacum, Habrothamnus elegans, Chorozema varium, Chinese Primroses, especially the double white, Daphne Indica, Poinsetta pulcherrima, Euphorbia splendens, Heliotrope, Mignonette, Sweet alyssium, Catalonian jasmine, Yellow Jasmine, Mahernia odorata, Stevia serrata, Violets, Roses, Cinerarias, and Brompton stocks. Tuberoses that flower late may be carefully taken up and potted, and will last till over Christmas; and many things may be taken out of the ground and slightly

forced. The common white Lily is good for this purpose; also Deutzias, Philadelphuses, and Tamarix. The common green Euonymus japonicus, is also worth potting to make a lively green for mixing with other things.

In taking up things from the ground for potting, care should be taken to have the pots well drained, with pieces of potsherds over the hole. The more rapidly water passes through the soil the better plants will grow. Pots could be made without holes, and the water would all go through the porous sides in time; but that is too slow a way, so we make a hole to admit of its more rapid escape, and we place the broken pots over the hole to make a vacuum, which assists the objects of the hole. In very small pots, or with plants which have strong enough roots to rapidly absorb all the moisture they get, and speedily ask for more, "crocking" is not necessary.

There are but few things in the greenhouse that will require special treatment at this time. Camellias and Azaleas, as they cease to grow, will require less water; but it is now so well known that moisture is favorable to growth, and comparative dryness favorable to flowering, that we need do no more than refer to the fact.

Bulbs for flowering in pots should be placed at once. Four or five inch pots are suitable. One Hyacinth and about three Tulips are sufficient for each. After potting, plunge the pots over their rims in sand under the greenhouse stage, letting them remain there until the pots have become well filled with roots, before bringing them on to the shelves to force.

VEGETABLE GARDEN.

Lettuces sown last month will now be large enough to set out for permanent growth. A common hot-bed frame, set on a bed of leaves or spent stable manure, will enable one to enjoy delicious salad all through the latter part of winter, where sufficient protection against severe frosts can be secured. In this division of our Hints, it is more of an object to preserve them through the winter for the purpose of setting out in the open air in spring. In the States this can be readily effected by their being set out in the open air in a sheltered place. Here in Pennsylvania they often do very well by having the ground thrown into ridges about six inches deep, running east and west, and the plants set out on the northern sides. They have a little straw thrown over them in severe weather, and get through the winter admirably, heading early in spring. The Early York Cabbage is extensively grown the same way. Where the climate is too severe to allow of this, they must be put under cover of shutters, as before described in our Hints.

Cabbages can be preserved in such a cellar, though most prefer them in the open air. One way is to pack them closely together with their roots uppermost, and then cover them with soil, on which straw or litter is thrown to keep them from freezing. By being packed this way, the water cannot get into the hearts, which is one of the chief causes of their rotting. Where plenty of boards can be had, they may be packed with their heads uppermost, and the rain kept off by the material.

Brocoli and Endive may be taken up with balls of earth, and set in cool cellars closely together, and they will grow sufficiently—the former to produce good head, and the latter to blanch beautifully all through the winter.

Asparagus beds should be cleaned, by having the old stems cut off and the soils from the alley ways dug out and thrown over beds. It keeps the frost from the roots, and thus permits them to grow and lay up matter all winter for next spring's growth. Very early in spring the soil should be raked back into the alleys, so as to leave the roots but a few inches under the soil, as the nearer they are then to the sun's rays the earlier will the crop be.

Celery must have continued attention to blanching as it grows, care being exercised to prevent the soil from entering the heart. Where very fine results are desired, the plants should be protected from early severe frosts, so as to enable the plants to grow without injury as long as possible.

Roots of most kinds, such as Carrots, Beets, etc., should be taken up before the frost is severe. They all keep best packed in sand in the open air, but it is too inconvenient to get at them in winter; hence cellars are employed to preserve them in. Cellars for this purpose should be cool, say with temperature of about 45°, and not all dry. It is not meant that it should be damp, as the roots will become rotten, but it must be moist enough to prevent shriveling.

However, if any protection can be given so as to enable one to get at the pit in frosty weather, most things keep better so than in any way. Celery keeps very well packed in earth, so that

the frost does not get at it; but it must be laid with the tops sloping, so that the water may be kept out of the heart.

FRUIT GARDEN.

We may, perhaps, repeat the advice to plant considerably more fruit trees together on the same space of ground than is usually done, even though some has to be cut away in time. This should especially be in the case where parties prefer to keep the surface soil clear; as the intense heat reflected from bare soil is one of the great sources of disease in young trees. It might be well to introduce nurse trees into orchards, to obviate this somewhat. Alders, Poplars or Willows, might, we think, be used to advantage; of course, cutting them away before they grew large enough to interfere with the roots of the fruit trees. A dry, warm bottom, but *cool surface* is of the highest importance in fruit growing.

The past season in most parts of the country has been one of very abundant bearing, and unless the food has been kept up by a liberal supply of manure, there will be many weak and exhausted trees, and short crops next season. We prefer to manure in such cases as these in midsummer. The cells of trees are like honey combs, and store up matter for use the next season. They have of course to do this while growing. Whenever this has not been done, matter for a surface dressing should be got ready during autumn and winter. Much injury has been done to fruit culture by the expressed dread some cultivators have of a "too rank growth," and a consequent advice not to manure. A fruit tree never suffers from too much manure, if the roots are healthy. If a tree seems to suffer after a heavy manuring, it is only that it was in a bad way before this. Of course, if one were to empty a cesspool, a cart load of fresh lime, or some other inordinate mass of food under a tree, it would suffer; but our meaning is that no amount of manure that would be found of benefit to any regular garden, will be otherwise than beneficial to a fruit tree, *if the roots be healthy.*

Many trees suffer from the scale insects, as well as from many other minute animal forms, some of which take up their winter quarters in some form or another in crevices of the bark, or in the crotches of the trees. There is nothing which "pays" better than to have these trees washed in the winter with a compound of sulphur and whitewash, colored with anything which may be desirable, so as to make a shade agreeable to the eye. Many of the small twigs in a badly infested tree may be cut away, so as the better to cover with the mixture the parts which are left.

In regard to pruning, many recommend to defer it till spring, in order to see what may be killed in the winter before cutting away much. Many trees are pruned which do not need any cutting, but where it is necessary we should operate as soon as possible after the fall of the leaf. There is less danger of any part of the tree dying in the winter, when it is autumn or early winter pruned. This is particularly the case with the grape vine, unless the plant has been badly mildewed during the growing season, in which case the wood does not mature. There is no better way to save from winter killing than vigorous fall pruning.

COMMUNICATIONS.

"DODD'S MARY."

BY MR. T. HARDING, NONANTUM HILL, BRIGHTON, MASS.

"Have you seen Dodd's Mary?" was a pertinent query among "the ancient gentlemen who hold up Adam's profession" in England, some forty years ago. I have no doubt, Mr. Editor, but what you have; and remember "her endearing young charms," as well as your correspondent does. However that may be, I nevertheless have seen the vertiable Dodd's Mary, *then* "in the pride of youth and beauty;" *now* "all faded and gone." I was then a youthful aspirant for Floricultural fame; a hopeful tyro in the art of Horticulture, when my preceptor started me off one bright May morning, with half a guinea in my pocket, in quest of the subject of this letter. The distance I had to walk was some eighteen or twenty miles, to a nursery near Leeds, in Yorkshire. I well remember the kind hearted

proprietor enquiring how far I had come, and asked if I was not hungry and fatigued. I believe I confessed to feeling a *little* so. At any rate I breakfasted with Mr. Major, his family, and Miss Mary Dodd, who was then on a visit there.

With a face beaming with good nature, Mr. Major addressed the young lady, saying "the young lad who was seated with them had come to buy Mary Dodd, or Dodd's Mary, one or the other, and for which half a guinea was offered." With a ready appropos she replied that "the sum named was a fair equivalent for Dodd's Mary, but would not buy Mary Dodd, who was a jewel beyond price." So it was decided that the other Mary was the one on sale; which was duly bought and paid for. After carefully packing up, we started off towards home. "All's well that ends well," is a trite aphorism. And so far all seemed to have gone well, as we journeyed onwards, Dodd's Mary and I.

It was my misfortune to overtake a (so called) "Mammoth Circus company," which had halted at a roadside tavern "to dress," and refresh themselves with copious libations of gin and ale, so as to make a "grand and imposing display" on entering the little town in the distance. I, of course, boy like, waited until the "brilliant and gorgeous spectacle" was ready to advance, and keeping pace with the "immense cavalcade," witnessed the "triumphal entry" of the "talented troupe of world renowned artists," on their "richly caparisoned and highly trained steeds." I kept pretty close to "Mr. Merryman, the fun-poking clown," who with a face as funny as Grimaldi's, was mouthing and mimicking, with all the strange facial grimaces, "from grave to gay" that the most accomplished of "merry Andrew's" was capable of.

> "From windows lassies looked a score,
> And neighbors met at every doore"

to enjoy the passing fun, as now and again "the great buffoon" gratuitously treated the gathering crowd to several "feats of agility," such as "throwing lofty somersaults and flip-flaps on his bare-backed horse."

Mounted on a milk white steed was "a maid in all her charms," in the assumed character of "Lady Godiva," and who seemed so beautiful and fair, that I innocently wondered whether she was really a woman or an angel. Alas! poor mortal, as she proved to be, she fell from her horse; "drunk as a lord," somebody said. Poor Lady Godiva," how I pitied her, as the "gay Cavaliers" dismounted from their prancing steeds, and "rushed to the rescue." As "the gallant knights" charged through the ranks of gaping rustics, we, Dodd's Mary and I, were jostled and tumbled together with the prostrate "Lady Godira."

During the "rough and tumble" time which followed, I had tenaciously held on to my charge, until a clod-hopper's hob nailed boots crushed the hand that vainly strove to save from danger, the much prized Dodd's Mary, who was literally severed in two. In less time than I have occupied in telling the troubles that befel us, I was outside the crowd, shedding tears either from the pain of my lacerated hand, or sorrow at the sight of the poor mutilated Dodd's Mary. In the meantime the fallen, though fair daughter of Eve, alias Lady Godiva; or my "angel in muslin," had changed her *role*; was transformed to "the queen of beauty," and seated on the top of "the golden chariot," among the musicians; looked none the worse for the fall, but if possible, seemed more imperiously beautiful still. In a short time the cavalcade moved on to the sound of "music's soothing strains," while I was left lamenting. With a heavy heart, I made the best of my way home, and there "poured forth a sorrowful tale." On examining the condition of the tender one, whose existence was in jeopardy, I was pleased to hear them pronounce the case not so bad after all, it might have been worse; for "while there was life, there was hope," and that with care and good nursing all would be well again. Such a favorable report seemed to act upon my saddened feelings like mercury in the sun, which rapidly rose up from the zero line to the one hundreth degree of happiness again.

Such, good readers, was my rather strange and ludicrous adventure with the subject of this letter, "when we were first acquaint." My protege was soon convalescent again, and increased in comeliness of form and stature every day. We watched our tender charge with every promise of soon realizing in the budding beauty, all the charms of matured loveliness which were about to unfold. In due time, like a peerless flower, as she undoubtedly was, her unrivalled charms seemed to fascinate all who beheld her matchless beauty. I well remember how delighted I was with the sight of the first open flower, which was a marvel in those days. Floriculture has made rapid strides in the march of improvement since then, with Dahlias especially.

Horticultural Exhibitions, or Flower Shows, as they were generally called, were not so grand as now. The Dahlia at the time of which I write, was one of the chief objects which engaged the attention of both professional and amateur growers, and contributed most to the floral displays of the country shows of that period. Recollection goes back to the time when single and semi-double Dahlia flowers were exhibited and obtained premiums. A single variety, the Paragon by name, was to be seen in every *good* collection.

Perhaps the readers will smile at the simple tastes of our fore fathers in gardening in those days, but let me add one word in testimony of the merits of the Paragon. Of all the single flowers of its kind, it was true to name. It was a paragon in every sense of the word, and I think should not be despised at this day. The color of its evenly formed long pointed petals, which radiated from a golden centre, (*button-eyed* they were afterwards called, from the supposed resemblance they bore to a brass button) were dark purple, margined with a lighter shade, and was really a pretty flower. Sulphurea Elegans, a large shaggy kind, was the best of the yellows, (would be considered the worst now.) Mary, Queen of Scotts, a small lilac colored kind, and like her namesake, had some pretentions to beauty. Jone's Diogenes was a scarlet wonder, while Anemoneflora was a small, passable purple flower, and somewhat resembled an Anemone. Queen of the Whites was by no means so queenly a flower as her name would infer; semi-double, with long compressed petals. Beauty of Ackworth, was a flaming scarlet, with a full centre, was showy and pretty good. The Queen of Sheba, in royal purple, was a regal flower, while William and Adelaide, a kind of floral sport, was the wonder of the day, "having flowers of two colors on one stem," as the catalogues informed the public. The Florist's Delight was curious, if not delightful, with its fawn, straw, buff, and yellow shaded flowers, vide catalogue of 1831-2. Wells's Eclipe was a much better flower, and certainly eclipsed all the foregoing kinds, until Springfield Rival, a handsomely formed dark purple, well cupped flower, outrivalled all its competitors. But the great marvel of the day was the floral phenomenon, Dodd's Mary, whose exquisite beauty overshadowed all her predecessors.

A deep cicatrice on my right hand from "the honorable wound" I received, when I shed my blood in defending Dodd's Mary, remains to remind me of the time when Dahlias were "all the go" in times gone by. Turning back the leaves of memory, the mind's eye plainly sees a Dahlia show, held in a country town in England, in the year of grace, 1831, where the above named varieties were exhibited, and the first premium was awarded for the twelve best flowers to my instructor in horticulture; and the first also, for a single specimen of Dodd's Mary. If the readers will look back to page 37 of the *Gardener's Monthly*, for the year 1872, they will see a description I gave of a flower show in 1830, and the day's doings therein recorded, were in a measure somewhat similar (omitting the singing match between Larks and Canaries) to the one when Dodd's Mary made her successful debut in that section. Somehow it seems as if the glory of the Dahlia had departed since then, from some cause or other, and the old style gardeners also, venerable and honored as they were, have nearly all crossed the boundary line of life, and passed onwards through the open gates of Eden, where the ever-blooming Amaranths neither wither nor fade.

MONSTERA DELICIOSA.

BY MR. W. BURNETT, NEWPORT, R. I.

I see G. A. H. has searched in all the American catalogues without finding the name. I very much question if he can find it under that name in the English catalogues. Philodendron pertusum* undoubtedly is the correct name of the plant. From Phileo to love, and dendron a tree, referring to habits of plants growing on trees. Monstera deliciosa, a name it received some years after its introduction into the Royal Botanic Gardens, Kew, I believe, on account of its large delicious fruit, which is nearly two feet long, with perfume and flavor much resembling the pine-apple. It requires some skill to fruit it. I fruited a plant of it previous to coming to this country; I believe that was the third plant fruited in England. It is a large rambling plant, requiring plenty of room.

RAMBLING NOTES.

BY ISAAC HICKS, L. I.

WHITE SPRUCE.

As it is well known that nurserymen must conform the trees they cultivate to the demand for sale, perhaps we had better invite the atten-

* Excuse me, Mr. Editor, pertusum, not *pertusum*.

tion of tree planters to the value of the White Spruce. Most of the Norway's that I have seen when they arrive at the age of thirty years, and often less, become much deformed by the continued breaking off of the small twigs by ice and snow from the larger branches, leaving their arms naked and unsightly. But in my observation I have not found this to be the case with the White Spruce. I consider a perfectly formed White Spruce from twenty to thirty feet high as among the most beautiful evergreen trees we have. Their compact growth and dark green foliage as we often see them on rising ground, interspersed with those of a lighter shade, make a truly pleasing effect; and they can be kept trimmed by annual shearing into any desirable shape, and scarcely anything is more picturesque than to see the young growth in graceful pendant outline around it.

HARDY TREES FOR THE SEASIDE.

I believe there is no evergreen equal to the Austrian Pine to withstand the force of high winds and the sea air. They laugh at the winter's cold, the salt air effects them but little, and the summer's heat they regard not when they are once comfortably settled in their homes. The Balsam Poplar, or Balm of Gilead, will grow near the ocean's brink, and so does the Cork bark Dutch Elm with us on Long Island.

FLOWERING SHRUBS.

We may look the largest catalogue over of the nurserymen and we will scarce find any bush prettier than the Azalia nudiflora, or Wild Honeysuckle, and they are so plenty and widely diffused it is a wonder they are not more cultivated. If we will take them up, and the same remark applies to the common broad-leaf Laurel, and cut them to the ground, we have found no difficulty in making them live; young plants are preferable, and can if we wish, be dug up in fall or winter, cut them down and cover with earth, and then plant in spring when it suits. While all the Weigelias are pretty the Desboisii is the most attractive, and the greatest bloomer we have.

The killing of the evergreens this spring in the various phases presented, has been to me a puzzle. Why one should be taken in a row where all fared alike, and all the others left of Arborvitæs? Why some in the same row should be only a small part killed, others half killed, and still others killed outright, I can find no reason. I know belts of trees do protect, and many so protected only by small deciduous trees, escaped entirely. It will probably be among the unknowable things. I have observed before that when our evergreens were killed in spring it was after an unusual hot day or days were succeeded by severe cold drying winds. That was the case in March, several severely cold blustering days followed a time of heat when the thermometer stood above 80°. Evergreens that grew in a porous, sandy soil we find were not as badly injured as those which grew on heavy ground, and we account for it because such sandy soil does not freeze as deeply, and the roots penetrate deeper and thus draw up moisture to supply the great drain the drying winds make on the branches and leaves. But the cold of March was not as severe as in winter; I think the hot days prepared the way. I do not consider the Silver Fir, Picea pectinata is as hardy as the Balsam Fir with us—'tis a pity.

All of our Red Raspberries except the Elm City were killed down, and I think in this latitude the hardiness of the Herstine is not tested by this winter's experience. The Missouri Blackberry passed with but little hurt; Kittatinny more than half killed; Wilson's nearly all.

CLEMATIS.

Few of the novelties I have seen please me better than the new varieties of Clematis, and as they grow older and develope their beauty, my admiration still increases. They are of such easy cultivation, require a top-dressing of manure occasionally, a stake to climb on, which I pull up every fall, lay the vines down and give them a slight protection, and in the spring they will reward us with a profusion of blooms of various shades of color and interest. As the Akebia quinata acquires age it increases in attraction, coming so early and so hardy, it ought to be a favorite with every lover of flowers.

ACER COLCHICUM RUBRUM.

Who can look on a perfect specimen of this new maple and not fall in love with it? I confess I cannot. Attracted by its long and singular name as it appeared to me, I procured a specimen several years ago, and now as it is covered with its dark green glossy foliage, and the young growth tipped with pretty red tints, it grows on my love, and I hope soon they will be so plentiful that many others will look on its beauty and admire as I often do. It is thrifty here, and although young trees were partially killed, who can blame them when the Sycamore maple so freely departed this life, and the sturdy Norway scarcely withstood the frost king's severe

approaches. I am disappointed with my Butternuts, for they are not destined as I find to fight their way as roadside trees, or even struggle with the grass on the lawn; the moist cool soil of the woods is their home, or the leafy mould of the hedge row. Now friend Meehan, I will close these rambling notes, for the lovely flowers, the singing birds, and all nature's harmonies invite us to lay aside the pen and mingle with them.

ORIGIN OF THE ISABELLA GRAPE.

BY MR. CHAS. CARPENTER, KELLEY'S ISLAND, OHIO.

Having read several accounts of the *first* introduction of the Isabella grape into the Northern States, I will give you another:

From 1799 to 1801 inclusive, my father, Gardner Carpenter, his half-brother, Bela Peck, Jesse Brown, and Capt. John Vernett, all of Norwich, Conn., were partners in a commercial enterprise in which Capt. Vernett sailed a vessel on trading voyages down and up the Atlantic coast, and occasionally extending a trip to the West Indies. On one occasion he brought home some grape cuttings, which were planted in the gardens of the several partners. Only one grew, and that in the garden of my uncle Peck, and bore plentifully of Vernett grapes, as they were called, and a few vines were propagated from it in the neighborhood. Many years after when Mr. Wm. R. Prince brought the Isabella grape to notice, vines were bought of him and planted in the vicinity, and the fruit proved identical with the Vernett grape. Some interest being excited by the fact, a cousin of mine having the books and papers of the partnership in his possession, examined them and found it was in the above years the partnership existed, in one of which, probably 1800, Mr. V. brought home the cuttings. The original vine was still standing in 1866, and probably is still.

NOTES ON THE SEASON AND CROPS AT MEMPHIS, TENN.

BY S. T. G.

Presuming that it might be a matter of interest to you to have a report of the fruits and vegetables grown here this season, I will state that in the spring the whole earth was fairly deluged with caterpillars. As it was duly published in all the newspapers of that date, I may, as otherwise I would not, confirm the fact that several trains of cars coming into the city were stopped on each of the two roads by these worms covering the iron rails for hundreds of yards in a body, compelling the brakemen, etc., to get down and sweep them off before the driving-wheels could obtain a sufficiency of friction to glide over the slippery, writhing mass. Great lanes through the forests were denuded of leaves, and whole apple and plum orchards swept of every vestige of foliage. Fortunately the youth of the leaves and geniality of temperature enabled the trees to speedily recover their clothing. Of course this misforune had a baneful effect on the crop of fruit. Nothing short of hand picking twice or thrice a day could enable me to save from a like fate my rose bushes. Peach trees escaped almost entirely, yet thousands of these horrible worms were bred on them, and grew to the length of about two inches. The few leaves they ate of this tree seemed impossible to furnish a sufficiency of food for such an amount of animal substance. Hatched inside a web stuck in the fork, they came out, ate a few leaves and descended, as room was required, to the larger branches and the trunk. Here they might be seen perfectly still for days at a time, but always *growing* rapidly. A singular characteristic of them is that, unless prowling through thick grass, or when young or half-grown, descending by the long web which each spins, from a tall rough forest tree; they are always arranged in military style. They travel too in long straight lines, usually several abreast. What becomes of them no one appears to know. The two last springs are the only seasons in which these creatures have ever been known to give us here one ten-thousandth part of such trouble. Heaven forbid we should ever see such a sight again.

The oaks, quince, apple and plum seem to be their favorite leaves for food. Whenever they attack one of these trees it is useless to attempt to prevent the consumption of every leaf on it, for if the original colonies within the web are shot away with a charge of powder, or the escaped worms are burned with wisps of greasy paper or bundles of fodder, others having finished their native trees, will cover the cleared one before morning, and this will be repeated for fifteen or twenty times before they finally disappear. Better by far to let them strip it as soon as possible, so as to guarantee a new set of leaves at once. They appear to never very seriously hurt any tree.

For the two last years we have been inundated with almost every conceivable sort of insect

save codling moth. Indeed the whole Union appears alarmed at the rapid increase of hurtful insects in the fields. What will become of the people when, like the Spaniards, they have cut down nearly all the forest trees, and thereby deprived the bugs of their natural food? It seems impossible to kill them.

Our peach crop is almost an entire failure; small amount of fruit, and almost universally stung with the curculio, and then consumed by the resulting maggot, aided when partly mellow by the green beetle, followed where it has eaten a hole, by the wasp and the flies.

Crops of strawberries, raspberries and blackberries, large and fine and disposed of at fine prices. The Concord and Hartford grapes flourish finely here, and bore this year an enormous crop. The Catawba's are loaded with luscious looking bunches, but for the last several days, since they began to ripen, the black dry rot and the mildew is in a fair way to cut off half the fruit. Last year none rotted. I am, in a small way, trying the paper bag and sulphur, singly and combined; plan gotten up in South Carolina. I shall know more of its effectiveness within a few a days.

Gooseberries and currants a total failure, and even the bushes are perishing under this most extraordinarily hot and dry summer—the worst we ever knew. Even mules have fallen and died from sunstroke.

I saw some ripe looking Scuppernongs in town to-day, just from Amite, La. What a pity the most useful of all grapes should present such a poor appearance—rough, single, tawny, dirty looking Muscadines. Dr. Van Buren, of Georgia, and others are striving with a certainty of ultimate success, by sowing millions of seeds, to get a thin skinned, clear colored, full bunched variety. Look out for as startling departures from the parent as is presented in the Martha's superiority over the Concord. As the color of the tendrils proves the color of the coming fruit, there's is no need to preserve until old enough to fruit. As you have the advantage of a great change in climate, can sow in a border late in the spring, and cut up as soon as the first tendril appears. Why don't you try for the fortune which awaits success in the production of the improvement? Vegetables of all sorts have done quite well until the last few weeks of drouth.

June 15th, 1872.

HOW TO EXPEL THE BORER.

BY J. STAUFFER, LANCASTER, PA.

Believing it a duty we owe to the public to make known anything that may be of value, I may be excused for stating a fact that came under my own observation. Henry E. Muhlenberg, M. D., a grandson of the celebrated botanist of Lancaster, Pa., called my attention this morning to an experiment made by him three years ago, on a fine European Linden, (Tilia Europea, the small leaved variety.) This with two others planted before his dwelling were attacked by the borer, (Saperda vestita) like numerous others planted along the curb line of the city, both for shade and ornament. Into one of the trees so infested he drove copper, zinc and iron nails, in the spring of 1869, at various points in the trunk. That a galvanic action was induced which changed the sap or vegetable juices so as to "disgust" the borers, may be inferred from the fact that they "backed out," and their depredations put an end to; the result is the tree so treated is now healthy and vigorous, a splendid shade tree, while the other two have perished and been removed as cumberers of the ground to make way for a fresh growth. The old wounds and scars are visible in the tree now standing, but all healed up and the damage repaired. He has since tried the same experiment on apple and other fruit trees, with similar success. The remedy is simple and may have been tried by others; it was a new and interesting fact to me, and may be so to others, hence I simply state the case, perchance some one may profit by it. Indeed it is a pity to see those beautiful Elms perish, when they may be saved by so simple a remedy so well attested and demonstrated in the instance given.

[Some years ago the idea was started of putting a band of copper and zinc round trees to prevent the ascent of stem climbing insects. The galvanic action of the two metals was perfectly shocking to the insects, and they generally went down in disgust. Why the fact has been lost sight of we do not know, there certainly appeared to be something in it.]

WHAT I KNOW ABOUT TURNIPS.

BY DAVID LANDRETH, PHILA.

(*Concluded.*)

On the Varieties of Turnips.

In England turnips are divided into two distinct classes—those designed for stock feeding, and those for table use. They are also divided

into rough-leaved and smooth-leaved. The smooth-leaved embrace those of which the Ruta Baga or "Swede" is the type, and of which the purple topped, yellow fleshed variety may be taken as the best representative. The rough-leaved sorts are generally white-skinned, and white-fleshed; some purely white, others with green or purple crowns; though there are several rough-leaved varieties with yellow flesh. These rough-leaved sorts are again sub-divided into cattle and table turnips; though in the usually limited culture in this country such distinction is of little consequence.

The purple top yellow Ruta Baga, or "Swede," is perhaps the most important root cultivated for stock food; its rapid maturity, large bulk to a given area, nutritious quality, sanitary property commend it as eminently worthy of culture.

It has become a practice in the sale of Ruta Baga seed to create varieties; and in an English catalogue before us there are no less than twenty-one sorts enumerated; the distinctions in a majority of cases are ideal. Last year I tested, side by side, twenty-two sorts, so called, imported for the purpose. In some of them the purple tint of the crown was more marked than in others; some were green topped, some of deeper yellow flesh, but the general aspect was similar, as they stood in the ground. Unfortunately, the premature severity of the autumn caught them unripe, and the test was not wholly complete. I propose to renew the experiment the present season.

White fleshed Ruta Baga. This mainly differs from the "Swede" in color—for table use some families prefer it to the yellow. A sub-variety, known as Hanover, sweet German, and Long French, has been much talked of, but we have not discovered its special value for the table. As a stock variety it is worthless, abounding in fibre.

Pomeranean White Globe. This is a free-growing rough-leaved sort, useful for both table and stock, and may be highly commended for both purposes. We have succeeded in establishing a strap-leaved variation, and now offer it to the public as an acquisition of value. Turnip cultivators need not hesitate to sow it, whether the purpose be for stock, market, or family use; it is not quite so rapid in growth as the flat varieties, may be expected to come in as a succession in autumn, and is admirable for table use in early winter. In short, the "Pomeranean Globe" is eminently valuable, and supplies every want of a white skinned turnip, more robust in habit than the early Dutch. It eclipses the "Norfolk" and the "Stone."

Amber Globe, of which we also offer of our own introduction a strap-leaved variety, is an Americanized foreign turnip, almost indispensable, we think, in every rural homestead. The flesh, when the turnip is in growth is very slightly tinged with yellow, which grows darker as the root matures; it is as solid as a ruta baga, and if topped very closely, so as to effectually arrest sprouting, they may be kept until late in spring, as good as when first pulled. The flavor is milder than that of the ruta baga, therefore by some more esteemed. On the whole, this is the best type of the yellow, rough-leaved sorts, and supplies every want in that direction. "Scotch yellow," "yellow Aberdeen," "yellow bullock-heart," and a long list of such, occasionally found in the catalogues of seedsmen, are all secondary to the Amber Globe.

Early Flat Dutch (strap-leaved). This with the Purple-top Flat, is the popular *early* turnip for table use. It might be difficult to sum up the volume of seed of this variety (which also originated on my own grounds) that I have distributed in a series of years. It has made its way over the entire continent; has been exported to India and Australia, and some years back, strange to say, was returned to us from Europe, under the auspices of the Patent office, as an English variety! For autumn and early winter use this, and the purple-top variety is highly popular, but as they become over ripe with age and keeping, lose somewhat of their succulence, and need to be succeeded by the Pomeranean Globe or the Amber Globe.

The Flat Purple-Top (strap-leaved) is so nearly akin to the Early Dutch, differing only in the color of the crown, that, its appearance, with that exception, quality and habit, may be said to be identical; both are of remarkable quick growth, the bulb sets flat upon the surface of the earth, the foliage sparse in comparison with size of bulb.

The Seven-Top Turnip of the South. This the hardiest of all sorts, may be left standing in the open ground during winter in any climate. It yields in the spring abundant foliage for boiling with cured meats, which must necessarily be relied upon in warm climates, and the antiscorbutic character of the turnip top is well recognized. The bulb of this variety is of but little

value, indeed not any in comparison with others herein described.

To enumerate only the sorts, nominal and otherwise, printed in some catalogues would occupy a page. I see no advantage in such extension, and shall here close our list. He who seeks only the better sorts need look no farther.

In Conclusion.

I started to tell what *I* knew about turnips, and references to individual acts and opinions are unavoidable, otherwise we might fear the tale told might have too personal a character; but I have only followed precedents in such cases.

This communication is given in the hope of diffusing useful information, to induce greater attention to a most valuable adjunct in husbandry, and if more widely regarded calculated to increase not only the quantity but the quality of our food; the tender, luscious mutton of the English is not attributable to their cooler climate alone, but to the *turnip* on which the sheep are fed and fattened for the butcher. But aside from that, there are many ways in which they may be turned to profitable account, and all these little incidental profits should be regarded if, in the inevitable increase in cost of farming, advance in wages, shortening of the hours of labor, and other progressive measures of the day, prices are not made to rise so high as to lessen consumption, and disarrange industrial and social order.

ORCHIDEÆ No. 5.

BY MR. JAMES TAPLIN, MANAGER TO GEORGE SUCH, ESQ., SOUTH AMBOY, N. J.

PHALÆNOPSIS GRANDIFLORA.—Although this article refers specially to the grandiflora variety, I shall include Phalœnopsis, generally the same treatment being required for all the genus. These magnificent orchideæ are among orchids what the diamond is in a collection of precious stones, and no collection is complete without at least a specimen; but as they are all natives of the hot, moist, shady woods of Java, Borneo, and adjacent islands, they require a high temperature at all seasons of the year, and being created without any puedeo bulbs to store up moisture, require to be kept moist at all seasons of the year.

These plants have always been scarce and comparatively high priced, from the difficulty of importing them alive and the slowness with which they increase, for they do not throw off extra shoots like most Orchideæ, but occasionally form a young plant on the old flower stem, for which reason, and also that some of the varieties flower several times from the same stem, it should not be cut away when the flowers fade; but the flowers are the most lasting of any Orchid grown. On strong healthy plants they frequently last from three to six months in perfection. The flowers are large, pure white, and from the light airy look the plant is frequently called the moth plant. These plants have been scarce and dear, in fact increasing in price until recently there have been some successful importations, previous to this there had been but few imported alive for about twenty-five years. As an example of the price, the late Duke of Devonshire paid one hundred guineas for the first small plant sent to Chatsworth. P. amabilis is much like the above, but smaller in all its parts, and is pink instead of yellow in centre of lip.

P. Schilleriana in a magnificent variety with beautiful variegated foliage and splendid mauve colored flowers, edged with white. Our plant had a spike with three dozen flowers this year, but it has been exhibited in Europe with over one hundred flowers. This is a very scarce and expensive plant. I saw a small specimen sold at auction in New York for eighty-five dollars, and the few who possess specimens in this country do not care to part with them at any price. There are several other species, but more are smaller flowered than the above named species, and their great rarity makes them difficult to obtain

As regards culture, these plants are very easily grown. If fastened on a bare block of wood the roots will cling to it and exist on the moisture in the air; in this case it will require damping several times a day in summer, and at least once a day in winter. This is the safest plan for amateurs to grow it, for after once established it will not suffer so readily from bad watering, but in no case should it get very dry, or the leaves shrivel and drop off. I grow some in baskets, some on blocks and shallow frames, or pots with drainage filled above the top of pot, and a little live spagnum moss and a surfacing grow these plants well. The temperature of the house should *never* be below 65° on coldest nights of winter, and then it is best to suspend the plant in warmest part free from draughts. In this country we generally have bright sun in the coldest weather, so that 75° or 80° in winter does no harm by day, with 80° by night and 90 to 100°

by day with air saturated with moisture is required in summer with direct rays of sun.

In conclusion, Phalænopsis flowers are excellent for bouquets, and decorating ladies hair they are unequalled, and with care will last more than one evening.

RAILROAD ÆSTHETICS.

BY J. W. L., PHILA.

The traveler by the Philadelphia and Baltimore railroad will have noticed when the train stops at Perryville, two neatly fenced, oval garden spots, in the angle formed by the main road and the branch road to Port Deposit. At this station there is usually a five minutes halt, and very restful and refreshing have I found it, after many miles of dust and cinder travel, to behold these little oases, all filled as they are with greenery and a profusion of flowers. The sight of these, together with the grateful feeling upon the "heated brow" of the cool breezes that ascend from the broad Susquehanna, where it sweeps towards the arches of the long bridge, will leave a far more pleasant picture in the memory than if that angle was filled, as is so often the case, with all kinds of railroad debris—old rails, old trucks, old sleepers and ties, the old, old weeds, Ambrosia, Lactuca, Amaranthus, and other sweetly-named, but noxious importations. Whether this neat angle space and its ornate oval plats is the property and work of the company, or whether of the town corporation I have never ascertained, but it certainly merits commendatory notice, inasmuch as the opposite, careless treatment, is so generally the rule. As an example of the latter there is a station village within twenty miles north of the city, the main street of which makes an acute angle with the track where it approaches said station, the contained space being occupied as a board-yard. Piles of lumber confronting at a yard's distance the face of the traveler, are not merely unpleasant objects for the eyes to rest upon, but by their obtrusiveness—which prevents your obtaining any intelligent idea of the place—a sort of semi-combativeness arises, so that the impression obtained is unpleasant and disappointing. It is, in brief, an exceedingly bad advertisement; especially is it so for any settlement so close to a metropolis, and which might be expected to derive benefit from the influx of those of that large class of citizens who are "casting their eyes about" for a pleasant rural homestead. In many places in Switzerland, likewise in England, I am told that the station surroundings are models of neatness and floral adornment.

Where the rear of suburban or town lots extend back to a railroad, they *may* be made very attractive, as is the case with our Jersey suburb of Merchantville, or they may be left in various unpleasing conditions, from merely careless to notably repulsive. The fact that the railroad approach to towns is so often at the riverside, or at least in the lower parts of a settlement, where at mills and manufactories, and the habitations of the workers in them cluster, is a main reason why their appearance is usually so unattractive.

But this reason for the general untidiness in such places, is not the *necessary* sequence. Mill-workers are apt to be tipplers; the average tippler is a sloven, and his house and lot will manifest it. Now a right concern for the improvement and general happiness of those, and the families of those who have hard physical labor to perform, involving (in part) the curtailment or virtual abolishment of dram-drinking, the extension of education, with the educating and meliorating influences of our Parks, will all have a good influence in this direction.

THE SHORTCOMINGS OF EVERGREENS.

BY J. W. ADAMS, SPRINGFIELD, MASS.

Old hedges have suffered more than younger, excepting of course, those just planted.

The greatest damage was caused in March, by extreme cold and high winds.

Evergreens in a dry position were the most injured.

Evergreens grown under or very near to larger trees, were frequently killed, treatment they are quite apt to receive in mild winters.

Evergreens on the north side of fences, especially tight fences, generally wintered well, and were killed badly on the south side.

Evergreens subjected to unnatural winds were badly killed. Especially destructive were winds which came over high and tight fences and pitched *down* on the tops of evergreens.

American Arborvitæ in nursery rows that in May and June, 1871, were *cut in* to a single leader, also somewhat shortened, *all* lived. Adjoining rows not pruned were generally scorched. These were in strong, heavy, and moist soil. Never too dry.

About the first week of March with a number of visitors, a general look about the premises resulted in the sale of numerous evergreens. I mention this because the parties had been lift-

long horticulturists and judges of trees. Many of these selected specimens could not be sent, showing that most of the injury was caused subsequently.

On the tenth of March a correspondent wrote me "we have had ninety days north-west wind." No doubt this excessive evaporation enfeebled all evergreens, while it did not so effect deciduous trees, for we have never had so abundant crops of cherries, and such promising crops of peaches, two fruits that excessive cold is supposed to destroy.

From the tenth of March we experienced the coldest north-west wind that was ever known by the "oldest inhabitant," a reliable personage who resides in this neighborhood. I must confirm all that he has affirmed, and add that for one full day the wind was blowing a gale (sixty to one hundred miles per hour by the United States Armory observer), and much of the same time the thermometer was below zero. And to this exceedingly cold and windy, with no snow, and late in the season, I attribute the great amount of damage to evergreens, both in forest and in cultivated grounds.

The lesson to be learned by experience so expensive, is unfortunately, not clearly defined. It is made apparent that drouth and large trees enfeeble evergreens and these can sometimes be avoided, as well as positions exposed to unnatural drafts.

Then there are certain evergreens proved to be hardy in all situations and seasons, as the Arborvitæ Pyramadalis, and several others not generally grown. My left-handed neighbor chronicles as one of the happy results of no snow and three feet of frost, the complete destruction of the whole woodchuck tribe. Should not the entire exemption from insects of the handsomest apple crop we have ever raised—so large and so fair as to attract the admiration of a *Kansas* horticulturist, warrant with equal credulity the annihilation of the apple worm? Were this one of the results of the late severe winter and spring, we would vote that the cost had not exceeded the compensation.

STATICE HALFORDII.

BY MR. MANSFIELD MILTON, NORTH EASTON, MASS.

Among the many flowering greenhouse plants in cultivation, few deserve greater commendation than S. Halfordii. Its large, glossy, green foliage, with its large spikes of blue and white flowers, remaining for months in perfection, give it pre-eminence over most easily cultivated plants.

I hope a few remarks upon the mode of cultivation I have successfully practiced, shall not be out of place. What we most require is plain practical remarks upon individual plants by practical men. Old plants of S. Halfordii are very little use for flowering; it is therefore indispensable to obtain large, young plants before well flowering specimens can be had. In securing cuttings for propagation, those taken from the parent plant with part of the ripened wood attached are easiest propagated, and make the best plants. For the purpose of repotting the cuttings without destroying their tender thread-like roots; they are best rooted in three inch pots, then shifted into five inch with equal parts of loam, leaf-mould and well rotted horse manure, with sufficient sand for porosity, giving plenty of water, as abundance of moisture is requisite for the health and growth of the plant. Regular shifting ought to be attended, not allowing the roots getting matted in the pots, as also pinching of all flower spikes until eight or ten crowns have been formed on the plant, and it shifted into a twelve inch pot, then allow all the spikes to grow, which will be one or more from every crown; after they have grown six or eight inches long, finally shift into a fifteen inch pot, as it gives additional strength to the spikes and substance to the foliage. Always bear in mind that they require plenty of moisture, for if once allowed to get dry, the foliage is apt to decay and the plant lose its vitality.

After the first flowering of the plants I deem, instead of growing them any more, it best to cut them down and propagate the cuttings, as young plants if properly treated will give more satisfaction and flower sooner than the old ones. If any one be anxious however for growing the old plants, shake the soil well from their roots, putting them into pots several sizes less than what they were flowered in, then shift into larger ones when well rooted. For insuring plenty of flower, the plants require a winter temperature of 50°; they will grow in a less, but cannot rely upon them flowering so well.

NOTE ON AMARYLLIS AND OTHER MATTERS.

BY MR. CHAS. MANN, MILWAUKEE, WIS.

I have just received the August number of the "*Monthly*," and find in it an article on the Ama-

ryllis, which attracted my attention, as I had similar experience with a lily. Early in spring I bought in a greenhouse a white Japan Lily, which had just begun to show its buds. Unfortunately the children got at it, and broke the stalk off just above the soil. I pinched out the tip, leaving only two buds on the stalk, and planted it in a moist shady place in the garden, where, against my expectation, I had the satisfaction of seeing it perfect its flowers after about five weeks. If this fact were generally known to amateurs, it might save a great many flowers that would otherwise be lost, besides proving valuable, as your correspondent says, for the transportation of flowers without the bulbs.

In our section fruit prospects are not quite satisfactory. Small fruits and cherries were excellent. Grapes hang thickly on the vines, but the season is so late that with the exception of Concord and earlier varieties, they are not expected to ripen. Apples about half a crop, and plums, none to speak of, the little Turk and unfavorable spring have got them all. Pears promise well.

EXPERIMENTS IN HYBRIDIZATION.

BY DR. A. P. WYLIE, CHESTER, S. C.

Do you know if hybrids have ever been made between Magnolia, Grandiflora, and fussata, macrophylla, glauca, etc.? I intended years ago to attempt it, but the war prevented me. M. grandiflora ripens seed well in my yard; it grows and flourishes on all rich soils.

I notice in your letter to Wisconsin State Agricultural Society, you speak of grafting the Magnolia. I did this many years ago, and succeeded with the deciduous, and they grew finely but died in the winter; they may succeed by leaving a bud to take root. I have kept the scions of M. glauca, tripetala and the Chinese purpurea, conspicua and soulangiana until late in spring, then budded and saddle-grafted them on M. acuminata with perfect success. Might not the Magnolias be hybridized with the Tulip (Liriodendron Tulip)? for I tried this in 1862, but operating on a bloom low down on the tree, it was destroyed by the children pulling it off before it ripened.

I have been hybridizing various things occasionally ever since 1847, both with annual and perennial plants. I had in 1860 about three acres in Peach trees, nearly every one hybrids of my own production. My object was chiefly to fill up the gap between middle of August and November, with good peaches, ripening at that season when we have, or rather had, very few first rate kinds; but my locality, except a small portion of it, is always spring-killed. This with the war and destruction of fences disheartened me so much, that I had all those fine varieties cut down, and nearly all are lost. My daughter painted many of them which were of the greatest *beauty* and excellence, particularly those produced by crossing the peach and nectarine. Out of many specimens produced by crossing peach and nectarine, I never produced one smooth-skinned nectarine—they would have the flavor and color of the nectarine, but still a little roughness of skin. I did produce two nectarines by re-hybridizing the nectarine with the specimens produced by the first crop. In crossing a cling and freestone peach, the free always rules.

MULCHING EVERGREENS.

BY H. E. CHITTY, BELLEVUE NURSERY, PATERSON, N. J.

Our evergreens suffered so very little from the effects of last winter, that I cannot help thinking the heavy mulching of spent hops which they received early last summer, had something to do with it. Our place is very much exposed—in fact, fairly open to the north, yet the evergreens seemed to retain their color until the fifth of March, when 12° below zero and the terrific wind changed them to a dingy brown, and we thought matters were settled with them. As the season advanced, however, and the weather improved, they gradually assumed their natural color, and finally completed a good growth. I think one per cent. loss from effects of winter would cover all.

With a row of arborvitæs running east and west, planted for a hedge, the case was somewhat different; here and there a plant was taken, and those taken never recovered. This *hedge was not mulched*, which the gaps have caused me to regret very much. On the whole, I am rather in favor of mulching.

COST OF HITCHINGS' BOILERS.

BY MESSRS. HITCHINGS & CO., NEW YORK.

In your valuable journal for August we notice Mr. Puffer's description of a boiler which he had made to heat a small greenhouse 32 feet long and 11 feet wide, requiring 95 feet of 4-inch pipe. He describes the copper boiler which was made

to suit the base and top of a McGee stove, and states the cost of boiler at forty-two dollars, adding that "one of Hitchings' boilers, that would do the same work, would cost about one hundred and fifty dollars." In this he errs, unintentionally no doubt, but still an error that if not corrected, may deter others from building small houses, when they have not the time or inclination to attend to the details of boiler making.

At the time he speaks of, at current rates, we could furnish a boiler, with ash-pit, etc., complete that would easily heat a much larger house with economy, and, in addition to the boiler, could furnish the 95 feet of pipe, with expansion tank and the necessary fittings for such a house, and include the labor for setting the same up, for the sum he names, one hundred and fifty dollars. At this time prices are somewhat higher, owing to the increase in the value of metals, but still the comparison will hold good.

IS THE PROFESSION OF GARDENING WORSE THAN THE AVERAGE OF TRADES?

(Essay read before the Gardener's Improvement Society, Germantown, by J. M.)

The remark is often made by gardeners, that their sons shall receive no encouragement from them to be of their profession. The frequency of the remark being made to me, has led me to reflect somewhat on the subject, and to see if possible, if they are right in their views. Were it not that the same is said by those of other trades and professions, it would seem that the complaint was justified, but when we know it to be a common case for very many to think their neighbor's trade better than theirs, it is as well to see if gardening is a mistake. The first thing to strike one is, how greatly the sons differ from those fathers who think it a mistake. As a general rule they adopt their parent's business, and rarely regret it. In older countries, and especially those where horticulture has been most encouraged, we naturally look for information on this subject. We find the gardener not only financially as well to do, but occupying a higher and more esteemed standing in society than he could have reached by the average of other trades. Those who have traveled through Europe will bear me out, that gardeners are surely better off as gardeners than otherwise. In our own country we will now investigate their standing. We have not perhaps the few noble establishments to encourage the aspirations of the gardener to be superintendent of as in Europe, but we have very many first-class establishments, and numerous places requiring intelligent gardeners, that no objection can be made of want of employment. There is plenty of room for intelligent labor.

The question of remuneration may next be taken up, and it will be found to be not behind that of others. As in other countries the wages vary with the qualifications required, and here range perhaps from five hundred to one thousand dollars per year. The carpenter and the mason will average perhaps from six hundred to one thousand dollars per year, subject somewhat to the cost of tools which they have to buy, a heavy expense, and to the number of rainy days which they often have to lose. It must not be overlooked how comparatively easy it is for a gardener to enter business for himself, an advantage possessed by few of other trades. The very nature of his business leads him to continual thought and habits of reasoning, and this when he enters business for himself, he finds a material help to him. Our country is new, and its wants in the products of the garden, greenhouse, and nursery, will be growing, affording numerous chances to gardeners to become their own masters and independent, engaging in the various branches of the business. If there be any one who thinks the English, French, or German gardener better off than he, he may console himself that his posterity will probably see our country as those mentioned are. As the country becomes older wealth will consolidate, and enable those desirous to raise costly horticultural establishments, and own gardens replete with rare treasures of the floral world. For my part I have no desire to see the time arrive, believing the interest of gardeners and of the country better served under the present system. The occupation of gardening is truly refining, it leads to thought, so conducive to longevity and the best interests of mankind, and tends constantly to recall our straying thoughts to admire the wonderful works of the ruling Power of the universe. We thus not only have as much pecuniary benefit as other trades, but have a business more interesting, and with this it is a business calculated to produce a better citizen and man. Thus I consider the profession of gardening is better than the average of trades or professions.

EDITORIAL.

CUT FLOWERS.

It is a trite observation that this would be a very dull world without flowers, and yet when we see how little people in general estimate the great boon, we may be pardoned for again citing it. There are thousands of houses about which no plant ever blooms, and thousands of homes in which a flower never enters, which might be made as cheerful as the world without, and at no great cost either. We who love flowers know the pleasure they bring, and we feel that they who have no regard for them miss some of the best delights of life. They do not know their loss it is true. The children in the blind asylums express great pity for those who are dumb, with but little reflection on their own loss ; while the dumb cannot understand how the poor blind children live. But we who are whole, know the depth of the great privation they both endure, and ever desire that they would be even as we are. And so in the love of flowers and of flower culture ; there are none of us but desire that all should be partakers of what we ourselves enjoy.

There are, it is true, both men and women who think flowers afford them no particular pleasure. but we find that in their daily avocations an original stratum of floral love crops out above the surface. Mr. Cash, when fixing up his office is very likely to select a carpet which has some leafy or floral design, in preference to one of bars or crosses ; and in the choice of an inkstand or paper holder, a bronze rose or polished acorn will generally carry the day against the dull square article. He may be satisfied on the score of economy, for business is business you know, with a plainly printed heading to his note paper ; but if he is thriving, it is a rare chance if his name and special products are not engraved within a delicately outlined foliaceous scroll. As for the ladies—let artificial flowers and Dolly Varden styles tell the tale for them. Even those excellent people who feel it a duty to bear testimony against the frivolities of fashion, and thus curb their disposition to indulge in weaknesses of more worldly inclined people, yet have their innate love for flowers developed in moss covered baskets, paintings of flowers, or beautiful designs formed of gorgeously tinted autumn leaves. Yes, the whole world is fond of flowers. No one need be ashamed to avow his taste. Every lover of his race must be pleased with any advance in public sympathy for them.

As society is constituted now, it is an expensive business to grow flowers on an extensive scale. The price of labor is so high, and constantly increasing, that gardening is much more of a luxury than it has been. But as the labor and care increases, society adapts itself to the change, and instead of growing the flowers buys them cut from the florists, or hires the plants for decorative purposes.

Those of our readers who live, what in a social sense we may call the country, have little idea of the growing immensity of the cut flower trade in the large cities. While it is believed that gardening as a fine art, or even the mere cultivation of flowers as a luxury, has not kept up in ratio with the increase of population, the mere florists trade, that is that which furnishes plants and flowers for temporary ornament and decoration, has probably doubled within the last ten years. Not only do florists grow flowers of their own in great quantities for baskets and bouquets, but many away from the immediate circle of the cities find it profitable to grow flowers to sell again to those who put them up ; and even private gardens frequently contribute to supply the demand. Indeed the tendency of this division between the one who grows the flowers and the one who sells, is continually growing greater. Land in the city is high and taxes heavy. Flowers are light and travel easily by rail or wagon, and thus can be raised to better advantage away from the expenses of a large town. The principal flowers grown for this purpose are Roses and Camellias, but Heliotropes, Violets, and many other popular flowers come into good use. These leading flowers are sold at a price per hundred flowers—Camellias in their best time wholesaling at about $20.00 per hundred, and Roses at about half this rate. As a general thing Camellias are raised in pots or tubs, but Roses are most generally grown in the natural ground under a glass-house erected for he purpose. A Rose house on this principle is t very pretty sight in the winter season—not quite as gay perhaps as its rival the Camellia, but with a fragrance which if plants have sensation as some wise folk tell us, the Camellia doubtless envies. Many Roses do not flower

freely under glass in winter unless the houses are very tight, nor unless they have some age. For general purposes, Saffrano, Bon Silene, Luxembourg, Isabella Sprunt, Arch Duke Charles, and Hermosa are popular, flowering young and freely where there is room, good light, and a year or two of age. Lamarque and Marshal Niel are great Rose house favorites.

As we have said we are glad to see the increasing taste for cut flowers. In this part of the world no dinner table is complete without a bouquet; no parlor well furnished without its little plate or basket of cut flowers. The churches of almost all denominations are decorated every Sunday with flowers or living plants; and without flora in some shape, no company is regarded as complete. We are glad of these signs of the times. As the world could not be made without flowers, we who are of the world should make the best use we can of them. No one was ever the worse for them. While in sickness and in health they have delighted thousands; and in death likewise, they have afforded friends and relatives many a consoling thought.

POSTAGE ON SEEDS AND PLANTS.

One of the greatest post-office boons was the permission to send seeds, grafts, plants and cuttings by mail at the rate of two cents for every four ounces, in quantities of not less than four pounds. It was thankfully accepted, and by this means innumerable varieties of valuable vegetable articles have been introduced into parts of the country where railroads and express companies failed to reach. No one ever complained of the law that we have heard of. It was thought it might operate to the disadvantage of the express companies, but in the main the parties who have availed themselves of this accommodation would not have used the express; and besides, the matter is so small an item in the express business that it is unlikely it would seriously interfere with them. At any rate, this good step in progress is virtually repealed by the new postal code, and the horticultural and agricultural community feel very indignant thereat, the more so as no one can see any particular reason why this retrograde step should have been taken.

By the present law packages of only twelve ounces can be mailed. Some of the smaller kind of seeds and roots can yet go in this way, but of larger varieties not enough can be sent to be of any service to any except to raise a half dozen specimens for a botanic garden; and as for living vegetation, where so much of packing material has to be employed to preserve them fresh and from injury by the pressure of other mail matter, the postal limit will be reached before the plant is enclosed.

The great topic of conversation in rural circles just now is what interest, public or private, is to be served by this unasked and unexpected change. But it is probably no more than a piece of hasty legislation, adopted without reflecting much on the consequences, and which if brought to the notice of their representatives by those interested, will no doubt be remedied next session.

EDITORIAL NOTES.

DOMESTIC

Large Nurseries in Missouri. Messrs. Blair Brothers, at Lee's Summit, have three hundred acres; Mr. J. A. Bayles, eighty acres; and Mr. Robert Watson, near these two has very extensive grounds devoted to hedge plants. We notice that the Missouri papers speak in high praise of these several gentlemen, and especially of the enterprise and character of the Blair Brothers.

Silicic Acid. At a recent meeting of the New York Lyceum, Prof. Henry Wurtz made the interesting announcement that his investigations led him to believe that Silicic Acid was of vegetable origin. Wherever, therefore, this was found in nature, it was as much a sign of prior vegetable existence as if the fossil remains of plants were found.

Parasitic Fungus on the Wild Anemone. The question whether fungi can depredate on living vegetation, or vegetation not previously diseased, is still discussed in agricultural or horticultural journals, though now well enough understood in the affirmative by practical mycologists. In the common wild Anemone (*a. nemorosa*), there is a small thread like fungus, which grows among the healthy cells, and when it wishes to mature its seeds or spores, it pushes through the tissue in such a regular manner under the leaf, that botanists have mistaken the leaves for ferns. This minute fungus is called *Puccinia anemones.*

The Berberry Rust. Dr. Edward, in Proceedings of New York Lyceum, says that De Bary is sure the wheat rust, *Puccinia graminis*, and the Berberry rust, *Æcidium Berberidis*, are one and the same. This fact we have recorded before in the *Monthly;* but he goes further, and insists that the wheat rust can only germinate on the Berberry, and the Berberry rust only on the

wheat. As rust in wheat is a very common circumstance, and the Berberry often thousands of miles away, we should doubt this.

Wakefield Earth Closet. Noticing an advertisement in our last of this excellent article, moves us to say a good word of the principle on which these closets are founded. The noxious gases which make all excrementition and waste material so noxious to animal life, are all absorbed by dry clay. Thus the atmosphere is purified, while the disagreeable matters thoroughly incorporated with earth before removal, render their translation to the compost heap anything but the unpleasant job it has always been regarded.

Plants as Fly-eaters. Some years ago, Mr. W. Canby, of Wilmington, Del., contributed a paper to the *Gardener's Monthly*, showing that the venus fly-trap caught flies for the purpose of feeding on them. The insect was actually digested by the leaf which enclosed it. As the plant "digests" carbonic acid by the leaves, there is nothing wonderful in the discovery. But it was a very interesting new fact for all. Mrs. Mary Treat, of Vineland, N. J., has now discovered that the long-leaved *Droseras* have the same fly-catching powers. The leaf however, does not close on the fly from the edges, as it does in the *Dionœa* or fly-trap, but turns over on to the fly from the tip, as if the leaf were the tongue of an animal. As these *Droseras* are much more easily obtained than the *Dionœas*, these interesting observations of Mrs. Treat's can be more readily repeated by others.

New Detroit Firm. Davis, Taplin & Co, is the name of the new firm made necessary by the death of Mr. Hubbard, formerly Hubbard & Davis. Mr. Taplin has been foreman for some time, and has a practical knowledge of the business excelled by few. The firm has always been popular West, but the new style has exhibited additional energy by absorbing the business and grounds of Ferrand & Osborne.

Red Astrachan Apple.—There seems to be a great difference of opinion in the West in regard to this variety. Here it is one of our best kinds—always handsome and of good quality. It never overbears, but produces regular annual crops.

New Zealand Spinach. This vegetable, the *tetragonia expansa*, we note is highly extolled in the *Southern Cultivator*. A correspondent says:

"I think among your notions, the introduction of this plant was one of the best. It is prepared as the common spinach—has perhaps a little milder or more mucilaginous flavor when plainly served; but with vinegar, eggs and a little butter, it is delicious. It is made even more so by the addition of the broad leaved French Sorrel. If, as our 'authority' says, it can be had all summer, we housekeepers have reason to rejoice in it."

Horticulture in Politics. Of course, as good citizens, horticulturists take an active interest in whatever may be of service to their country, many of the fraternity are very prominent at this time. One of the most worthy of Southern horticulturists, Col. Langdon, of Mobile, is spoken of as a candidate for Governor of Alabama. Another equally distinguished, Col. Colman, of St. Louis, we see named in connection with the Governorship of Missouri.

SCRAPS AND QUERIES.

FLOWERING PLANTS FOR JUNE.—Plants in bloom at Rhosyumynydd, the suburban residence of J. P. Jones, Esq., Blockley, West Philadelphia, Penna.

[By an oversight these valuable lists of plants flowering in each month, have been inverted. These should have been in our last issue.—ED.]

JUNE.

HARDY HERBACEOUS PLANTS.

Achillea	millefolium alba, Yarrow
	roseum
	tomentosa
Acorus	gramineus variegata, sweet rush
Agrostemima	coronaria, mullein pink
	githago, Cockle
Ajuga	reptans variegata, Bugle
Alyssum	Saxatile, Madwort
Amaryllis	longifolium, Daffodil Lily
Antirrhinum	majus, Snapdragon
Aquilegia	vulgaris, var., Columbine
	Siberica
Astilbe	Japonica, Spiræ
Calystegia	pubescens, fl. pl., morning glory

Campanula	aggregata, bell-flower
	medium alba, Canterbury Belle
	coerulea
	persicifolia alba
	coerulea
Centaurea	Cyanus, Centaury
	montana
Coreopsis	bicolor, Tickseed sunflower
	lanceolatus
Corydalis	glauca, Corydalis
Delphinium	consolida, Larkspur
	flora pleno
	formosum
	hybrida
Dianthus	barbatus, var., sweet William
	cæsius
	plumarius, fl. pl., Pinks
Dictamnus	albus, Fraxinella
Dielytra	eximia, Dutchman's Breeches
	spectabilis, bleeding heart
Digitalis	lutea, Foxglove
	purpurea alba
Erysimum	Peroffskianum, wall flower
Geum	coccineum, Avens
Gypsophila	paniculata
Hemerocallis	flava, day Lily
	fulva
Hieracum	aurantiacum, Hawkweed
Lamium	maculatum alba, Dead Nettle
	roseum
Lilium	bulbiferum
	umbellatum
	aurantiacum
	candidum
	excelsum
	martagon, purpurea
	pyrenaicum
Lychnis	Chalcedonica
	dioica alba, fl. pl.
	rubra pl.
	Haageana, var.
Œnothera	macrocarpa, Evening Primrose
Pæonia	alba flora, Peony
	fragrans
Pentstemon	digitalis
	Torreyii
Phlox	glaberima
Pyrethrum	alba pleno
	roseum [Buttons
Ranunculus	aconitifolius, fl. pl., Bachelor's
	acris, fl. pl.
Saxifraga	umbrosa, London Pride
	sarmentosa
Silene	atocion, catchfly
Spiræa	aruncus, goat's beard
	filipendula, dropwort
	lobata, ladies' feather
	ulmaria variegata, meadow sweet
	flora pleno
Stachys	lanata, lamb's ear
Tradescantia	virginica alba, spiderwort
	coerulea

EVERGREEN SHRUBS.

Lonicera	flexuosa, honeysuckle
	brachypoda
	reticulata
Ligustrum	sempervirens, Privet
Mitchella	repens, partridge berry
Crætagus	pyracantha, hawthorn
Rhododendron	maximum, mountain Laurel [ton
Santolina	chamaecyparissus, lavender cot-

DECIDUOUS SHRUBS.

Clematis	flamula, virgin's bower
	Hendersonii
	Standishii
	Viticella
	venosa
Deutzia	crenata
	flora pleno
	scabra
Evonymus	Americana, burning bush
Hydrangea	Otaksa
Jasminum	officinale, Jasmine
Koelreuteria	paniculata
Lonicera	sempervirens, honeysuckle
	lutea
Prinos	verticillata, winter berry
Rhamnus	lanceolatus, buckthorn
Rhus	cotinus, mist tree
Spiræa	Fortunii alba
	Reevesii, fl. pl.
Wiegelia	amabilis alba
	variegata

JULY.

HARDY HERBACEOUS PLANTS.

Achillea	millefolium roseum, Yarrow
	Ptarmica
	flora pleno
Aconitum	napellus, monk's-hood
	variegatum
Agrostemma	coronaria, mullein pink
Alyssum	saxatile, madwort
Antirrhinum	majus, snapdragon
Asclepias	incarnata, swallow-wort
Bocconia	Japonica
Campanula	grandiflora, bell-flower
	persicifolia
	alba

Centaurea	Cyanus, blue bottle
	montana
Chelone	barbata
Coreopsis	bicolor, Tickseed Sunflower
	lanceolata
Corydalis	glauca, Corydalis
Delphinium	consolida, fl. pl., Larkspur
	formosa
Digitalis	purpurea alba, Foxglove
Epilobium	hirsutum, willow herb
Funkia	ovata
Gypsophilla	paniculata
Lilium	auratum, Lily
	bulbiferum
	Canadense
	longiflora
	Philadelphicum
	Thunbergianum atrosanguineum
	Tigrinum
Lobelia	cardinalis, Cardinal's flower
Lychnis	dioica, fl. albo pl., Bachelor's [Buttons
Oenothera	macrocarpa, evening primrose
	Drummondii
Pardanthus	sinensis, Blackberry Lily
Pentstemon	atropurpurea
Phlox	paniculata, var , Lychnidea
	pyramidalis
Plumbago	Larpentae, Leadwort
Potentilla	garneriana, cinquefoil
	Obriana
Rudbeckia	laciniata
Silene	stellata, catchfly
Spireæ	ulmaria, meadow sweet
	flora pleno
Stachys	lanata, lamb's ear
Uniola	paniculata
Yucca	filamentosa, Adam's needle

BEDDING PLANTS.

Achyranthes	Verschaffeltii
Amaranthus	tricolor, Joseph's coat
Amaryllis	Atamasco, Atamasco Lily
Asclepias	curassavica, Swallow-wort
Caladium	esculentum, elephant's ear
Coleus	Verschaffeltii
Cuphea	platycentra, cigar flower
	strigulosa
Fuchsia	coccinea var , ladies' eardrop
Geranium	Zonale var.
Gladiolus	hybrida, Sword Lily
Gnaphalium	lanatum, everlasting
Heliotropium	Peruvianum, Heliotrope
Lantana	alba nana
Mathiola	annua, tenweek stock
Petunia	alba pleno var.
Portulacca	grandiflora, Purslane
	flora pleno
Sencio	maritima, dusty miller
Verbena	hybrida, vervain
Viola	tricolor, Pansy.

TREES AND SHRUBS.

Ampelopsis	hederacea, Virginia creeper
Bignonia	grandiflora, trumpet flower
	radicans
Ceanothus	Americanus, New Jersey tea
Celastrus	scandens, staff tree
Clematis	flamula, virgin's bower
	Hendersonii
	vitalba, traveler's joy
Clethera	alnifolia
Daphne	cneorum
Erica	cinerea, heath
	vulgaris, Ling
Glycine	frutescens, kidney-bean tree
Hydrangea	hortensis
	Japonica
	Otaksa
Jasminum	officinale, jasmine
Lonicera	sempervirens, Honeysuckle
Magnolia	purpurea gracilis
Potentilla	fruticosa, cinquefoil
Sophora	Japonica pendula
Spireæ	callosa
	alba
	Douglassi
Tamarix	gallica, Tamarisk

AUGUST.

HARDY HERBACEOUS PLANTS.

Achillea	ptarmica, Yarrow
Aconitum	napellus, Monk's hood
Begonia	Evansiana
Centaurea	Cyanus, Blue bottle
Coreopsis	bicolor, Tickseed Sunflower
	lanceolata
Corydalis	glauca, Corydalis
Delphinium	elatum, Larkspur
Dianthus	caryophyllus, Carnation
	plumarius, Pink
Evvysimum	Peroffskianum, Hedge mustard
Funkia	Japonica alba, Day Lily
Gentiana	septemfida Gentian
Hieracium	aurantiacum, Hawksweed
Lilium	lancifolium, Album Lily,(Japan)
	rubrum
Lychnis	diocea
	fulgens
Pardanthus	sinensis, Blackberry Lily

Passiflora	incarnata, Passion flower
Polygonum	Japonicum, Persicaria
Phlox	glaberrima, Lychnis, (bastard)
	paniculata
	pyramidalis
Plumbago	Larpentae, Leadwort
Rudbeckia	laciniata
Uniola	paniculata, Seaside Oat
	SUMMER BEDDING PLANTS.
Abutilon	album, Chinese bell
	striatum
	vexilarium
Agapanthus	umbellatus, Lily, (African)
Aloysia	citriodora, Lemon Verbena
Amaryllis	Atamasco, Lily, (Atamasco)
	Belladona, " Belladona
Asclepias	curassavica, Swallow wort
Bouvardia	tryphylla
Cuphea	platycentra, cigar flower
Erythrina	cristagalli, Coral tree
Fuchsia	coccinea, ladies' eardrop
Geranium	Zonale
Gladiolus	gandavensis, sword Lily
	natalensis
Habrothamnus	elegans
Heliotropum	Peruvianum, Heliotrope
Lantana	alba nana
Maurandia	Barclayana
Pentas	carnea
Plumbago	Capensis, Leadwort
Ruellia	formosa
Salvia	coccinea, Sage
	rosea
	splendens
Verbena	chæmedraefolia, Vervain
	TREE AND SHRUBS.
Bignonia	grandiflora, Trumpet creeper
Ceanothus	Americanus, New Jersey Tea
Clematis	crispa, Virgin's Bower
	vitalba, Traveler's joy
Hedera	Helis' Ivy [Sharon
Hibiscus	Syriacus, rosea pleno, Rose of
	variegata, purpurea pleno
Humulus	lupulus, Hop
Hydrangea	hortensia
	Otaksa
	paniculata
Lonicera	Sempervirens, Honeysuckle
	lutea
	Belgica
Saphora	Japonica pendula
Spireæ	Douglassii
	Fortuneii rosea
	alba

It would be very desirable information from any of your correspondents through the *Monthly*, to know if they have ever seen Lilium bulbiferum true to name. As I have what appears to me one species under three names, L. bulbiferum, L. aurantiacum, L. umbellatum. If it derives its name from bulblets growing from the axils of the leaves, I have never observed any on them, and I have known them for twenty years, nor do I know any of the species bearing them except L. tigrinum.

The Lilium being such a magnificent genus of plants, nearly all hardy, it would be very desirable if some of our enterprising nurserymen or seed and bulb growers would publish in the *Monthly* a correct list of all the species in cultivation, with their varieties.

PROPAGATING MARANTAS AND DRACÆNAS.—*J. E. W., Madison, Wisconsin*, says: "Will you be so kind as to answer through your 'Notes and Queries,' the manner of propagating the Marantas, Dracœnas, and Cissus Discolor."

[Marantas are propagated by dividing the stools or creeping Rhizomas into small pieces. Dracœnas have their upright stems cut into small pieces of about half an inch long. Both of these pieces put just beneath the surface of sandy soil, and set in a temperature of about 70°, will make plants. *Cissus discolor* is best propagated by the half ripe wood in summer timé, or by the young sprouts which push out at starting towards spring.]

NAMES OF APPLES.—*D. F., Delaware Co., Pa.*: The apples are 1, Cornell's Fancy; 2, White Doctor; 3, Summer Pearmain; 4, not known; 5, Smith's Cider; 6, Ridge Pippin; 7, unknown; 8, Porter; 9, Fallawater; 10, Baldwin.

TREES AND SHRUBS KILLED IN THE PAST WINTER OF 1871-72, AT *J. P. Jones', West Philadelphia:* A "Silver Fir," (Picea pectinata), about thirty feet high, killed half-way down from the top, and badly injured on the north side. Retinospora ericoides and obtusa all killed where exposed to the sun. Cupressus Lawsoniana, nine feet high, entirely killed; Evergreen Oak, (Quercus virens) all last year's growth with the leaves also, killed, but now putting out new growth. A Japan Holly, (Ilex Fortunii), two years planted, killed; Prinos glaber, killed to the ground; Daphne cneorum and D. pontica, dead

almost to the ground; Erica vulgaris and Olea ilicifolia, killed to the ground, that had been planted out since 1869; Cedar of Lebanon, Deodar Cedar, both killed to the lowest branches, the former four feet, the latter about sixteen feet high. Cunningham's Auracaria, twelve feet high, covering a circle of twelve feet in diameter killed to the lowest tier of branches, which are still growing; Rhododendron Cunninghamii and R. splendens, foliage nearly all dead. Common Broom, (Genista scoparus), Ulex Europea, whin both killed to the ground, but the whin all starting to grow again. The common Juniper, (Juniperus communis), also the Irish variety, wherever exposed to the north and south, entirely killed, and wherever sheltered on the north and south sides, exposed to the east and west, are all safe. Auracaria imbricata planted three years, entirely killed. A variegated White Cedar, (Cupressus thyoides), eight feet high, all the last year's growth, killed. The grounds where all the above are or have been growing, slopes to the east, south, and southwest.

AUTUMN FLOWERING OF THE HORSE CHESTNUT.—*T. D. R.*, writes: "Knowing your interest in such matters, I beg leave to tell you of a second blossoming of a Horse Chestnut, opposite the Mint, on Chestnut below Bread. I do not know whether it is to you as to me, a novelty."

[We have never seen this tree flowering "naturally" at this season before. On one occasion we noted a tree, the leaves of which were destroyed by a contiguous fire, and another which had the foliage stripped by caterpillars, both flower again profusely in fall.

We take it that trees do not like "rest" longer than necessary for some special purpose, when this is accomplished they grow again. The Horse Chestnut usually loses its leaves here by the end of August, and it pushes out again in spring; but this season, which was so very hot, the maturity was at least two week's earlier, and thus, on account of the long rest, the trees are in blossom again.]

TO CORRESPONDENTS.—The readers of the *Gardener's Monthly* must have noticed how liberal its contributors have been the present year in furnishing interesting correspondence. We believe that never in the existence of the magazine has this department been so well sustained; and we beg to return our friends our best thanks for their favors.

The publisher believes that for the price he furnishes more matter in closely printed type for $2.00 than any magazine in the world, while the rates of advertising are lower in proportion to its *bona fide* and appreciative subscription list than under some circumstances could well be afforded, while the editor's labors are greater than anything but the love of horticulture would warrant. But the magazine was not established so much as a monetary speculation as for a means of voluntary communication between the best minds in horticulture, and both editor and publisher are gratified by the handsome and generous manner in which their efforts are seconded.

In regard to communications, we may repeat that no one need be afraid of the "waste" basket. We may be an exception to the generality of magazines, but we can truthfully say that we have rarely received a letter from a horticulturist, or an inquirer, but we found some interest in it.

THE EDITOR'S DEPARTMENT.—A correspondent who sends us a very interesting article for the magazine, in a note, remarks: "I believe I violate the rules in sending to you instead of the publisher." But here he was right. Advertisements, subscriptions, and all matters of business should be sent to the publisher in Philadelphia—communications for the body of the magazine to the editor in Germantown.

SEEDLING PEACH.—*G. W. T., New Brunswick*, writes: "I send you to-day, by express, samples of a late peach, which I believe to be new. Fruited three years on my place; though I did not actually plant the pit, I am almost sure it is a seedling. It was quite a small bush in a fence row when first I saw it. I wish your opinion of it. I send it with leaves, in nearly all stages of maturity."

[In the first place we must commend the manner in which these were packed. With several courses of clean paper around each peach, and the whole with a layer of dry moss between each, gave an elasticity to the whole which defied the efforts at "smashing," so common with express employes, and resulted in getting them to us in as perfect condition as if freshly gathered from the tree.

The tree is evidently a seedling of Crawford's Late, from which it is difficult to distinguish it in descriptive language. The foliage is exactly the same. These seem to be more *teton* like than

Crawford, and possibly (September 2d) a trifle earlier. All we can say is that it is an excellent fruit in every respect, but its value will depend on a careful trial together with Crawford's Late. If it have any point of advantage over this it will be well worth naming and distributing.]

THE BEST CHERRY STOCK FOR THE WEST.—An Iowa correspondent says he has found the Mahaleb and Morello much less hardy the past winter than the Mazzard, which escaped entirely unhurt last winter, and he therefore proposes to fall back entirely on this in future. This is just the opposite of what so many Western men believe, but it confirms what we have always suspected, that "hardiness" is a very relative term. Hardiness depends on many things, and is independent of temperature alone.

FOURCRŒA GIGANTEA.—A correspondent says: "A noble specimen of this may be seen in bloom in the course of a few days, on the estate of the late Hon. W. Kelly's, Rhinebeck. It is eighteen years old, standing twenty-four to twenty-five feet high, with twenty-five spikes, each spike averaging one hundred and fifty blooms, in all about three thousand. It is a native of South America, and was introduced in the year 1690, and named after Fourcroy, a French chemist, (Linn 6, or 1, Nat. Or. Bromeliaceæ). It is very much allied to the Agave, and requires the same treatment.

The gardens and pleasure grounds under the able management of Mr. J. Peattie, Mr. Kelly's gardener, an equal to, if not surpassing any in the State, will amply repay a visit.

AZALEAS AND RHODODENDRONS AT BLOOMSDALE.—Our correspondent, *Chronicler*, visited the grounds of Messrs. Landreths while these were in blossom, and reports them comparatively uninjured by the winter. This he attributes to the great health of the plants. Mr. Landreth spreads sawdust between the plants, and the surface roots take care of themselves near the cool surface which this mulch ensures. This is no doubt the reason they are so hardy and vigorous, and thus more able to endure the trials of the late extraordinary season. *Chronicler's* hint is a very valuable one.

TREES INJURED LAST WINTER AT BABYLON, L. I.—*Mr. P. H. Foster*, writes: "I feel much interest in the list you publish of trees stood the last winter, taking the list of Mr. Sargent's as guide, will name some of the variations. Cryptomeria Japonica, killed; Cupressus Lawsoniana, do.; Juniper Virginiana, do.; J. Hibernia, do.; J. Swedish, good; J. communis, good; Retinospora ericoides, killed. Of the Thuja, Hoveyii, Hoopes, globosa, all sound, while T. Occidentalis, Parsons, Reidii, and B. orientalis all suffer alike. Acer Negundo, killed; Beech, common, uninjured; Purple, do; Castanea vesca, killed; Berberis aquifolium, killed; Cratagus Pyracantha, killed; Lonicera, injured; Acer colchicum rubrum, killed; Tulip, many killed to the ground; Sycamore maple, tops killed; Norway, do.; English and Scotch Elm, badly hurt; Acer Tartaricum is uninjured."

SPARTO GRASS.—Of the efforts to introduce this superior paper making material into our country, Mr. W. Saunders says: "It will be no easy matter to introduce the plant here. After many years trial (it was first ordered in Mr. Newton's time) to get seeds, we at last succeeded in receiving about one quart, which cost over $60.00. The plant does not seed freely, and the cost of collecting is heavy. I made several sowings, and found about twenty per cent. of the seed to vegetate. Some of the seed was distributed, but failed to grow anywhere but with us. I grew the plants for two or three seasons, but they have completely vanished during this hot, dry spell. They were rather injured too during last winter. Some years ago, when we were collecting facts and figures concerning this grass, we learned that an establishment in the West was using the *Spartina cynosuroides* for paper, and that some English papermakers who were using it, and who had formerly worked the Esparto of the Mediterranean, gave it as their opinion that the Spartina made as good, if not better paper than the Esparto. I have not heard anything about it for some time, but it is worthy of further attention. I have frequently suggested the importance of the Department being in full possession of all facts bearing on this question. I have heard that this Spartina grows in immense quantities on the Mississippi bottoms."

DISEASE IN PEACH TREES.—A correspondent encloses us the following from the *St. Joseph's Herald*, and asks our opinion:

"W. H. Judson, of St. Joseph, near the Napier Bridge, claims that he has saved, in a word

redeemed his orchard from destruction. This orchard was pronounced worthless last year by persons who regarded themselves competent judges; yet Mr. Judson has taken better peaches and realized better returns than last year, and the foliage is improved in quality, color, &c., while the general appearance of the whole orchard has materially changed to what seems to be permanent health.

"Mr. Judson claims that his orchard has been injured by the excessive drouths of the past three summers, and by the severity of the succeeding winters; that it has suffered from want of care, and in some instances from being bark-bound. He has found peach gum oozing from the bark and limbs of his trees, and discovered large sections of the tree beneath this apparently live bark, absolutely dead. In some trees nearly the whole tree was girded; his surprise is not that the tree yellowed and pined away, but that it did not die absolutely and immediately. Mr. Judson claims that this destruction is due to an insect, a borer, which works between the green bark and wood. He has taken as many as nine and twelve from a single tree. Observation teaches him that the insect is poisonous to the wood, and the effect of its work is to kill the heart of the limb, or trunk, wherever it is at work. When the heart has so been poisoned, the fruit on that limb ripens prematurely, and it would seem as if the poison from a single limb, and it may be a single insect, may pervade a whole tree. Wiry vegetation comes after the vitality of the tree has been so diminished, that it may almost be called the death rattle of the tree. Mr. Judson's remedies are careful cultivation; removing all dead bark and poisonous gum, heading back the tree, relieving bark-bound trees by splitting with a knife, and the application of ashes and manure. He regards hot water and ashes simply as stimulants and nothing more."

[The facts recorded by Mr. Judson have often been noted and referred to in the *Gardener's Monthly*, and for a long time many of our best minds believed here to be the sole cause of the yellows. It is not, however, caused by an insect, but by frost. There is no doubt about this, as the phenomenon has been closely studied. The older the circle of wood, the less vitality it possesses, and often in severe winters the whole wood will be destroyed except a thin layer of cells next the liber or inner bark. The consequence of this is that this thin layer of wood cannot transmit sap enough to meet the demands of the leaves, and they are thus *starved*; and the yellow cast, which gives the name to this peach disease, is always the attendant of starved foliage, as every gardener knows. The higher up the tree the greater the injury, and the sap, impeded in its upward flow, takes its only open course in side sprouts. In such cases no amount of hot-water, potash, or any similar applications can possibly do any good; and it was this knowledge which kept so many from investigating the reported cures by hot-water and potash.

But it was found that a large number of trees with the yellows had not this dead wood in the centre, although the *attendant phenomena*, even to the numerous side sprouts, were exactly the same, and *these* were found to be infested with root fungus, and these potash and hot-water might cure. Now though these two *remote* causes of yellows are so very different, the *immediate* cause is just the same. The fungus, by destroying so many of the sap vessels, *obstructed the ascent of the sap* just as thoroughly as if these vessels had been destroyed by frost; and of course the yellow appearance was precisely alike. It is starvation of the leaf cells in both instances.

We have gone into this matter here closely, because it affords a useful lesson against taking remote for immediate causes, which is the great bane of all our horticultural reasoning. It is rarely indeed that any of our operations depend on a single cause, but usually on a long train of them,

Mr. Judson's treatment is excellent. We have known many to renovate their "yellow" trees entirely by severe pruning.]

NAME OF PLANT.—*Dr. L. F., Evansville, Ind.*, writes: "Within you will find the end leaf of a fern, which I have raised from seed. The middle rib of all the leaves is white, and the ribs themselves, green. The green is of a very succulent, fresh color, and contrasts well. It is, as much as I know about it, a hybrid fern, and in its variegated leaf originated by accidental seeding in my greenhouse, and one of my showiest ferns. Is this new or old?

I send you at same time some leaves of a plant which has as great medical virtues as Peruvian bark. Could you not tell me what is the name, and if already known longer. They call it here Indian medicine. It is a perennial, as you see by the root. I shall be very much obliged for your information of this medical plant. I have

not seen any flower, only the plant, which is from a foot to one and a half high."

[The Fern is Pteris argyræa.

The other root appears to be the Indian "Pipsissiva"—*Chimaphila maculata.*]

BOOKS, CATALOGUES, ETC.

CATALOGUES.—As the planting season approaches, we receive numerous nursery catalogues and we are pleased to see by those thus far received that a varied and fine assortment is offered throughout the country this year. There is a deal of information useful to horticulturists in a catalogue, and whether intending to plant or not it is as well to send for some of them. The following have been received this season so far:

Samuel M. Bayles, illustrated retail general list; Thomas Morgan, flowers and plants; T. S. Hubbard, grapes; George Balderston, general catalogue; Jabez Capps & Sons, general list; C. H. Allen & Co., illustrated, trees, roses, &c.; J. Monnier & Co., seeds; Nicholas & Newson, wholesale nursery stock; Isidor Bush & Son, wholesale, grape vines and fruits; J. B. Jones, wholesale list; E. A. Riehl, grape vines; Rob't Douglas & Son, wholesale, seedlings; Louis Van Houtte, bulbs; R. Cummings & Co., bulbs, &c.; Grube & Newland, bulbs; R. Halliday, flower seeds; W. F. Heikes, wholesale, stocks and trees; Barnes & Co., wholesale, nursery stock; Randolph Peters, nursery list; Chambersburg Nursery Association, retail list of stock; Atwood, Root & Co., wholesale, fall list of stock; J. Jenkins, tree and evergreen seedlings; Richardson & Vail, wholesale, fruits; A. Hance & Son, wholesale general list; Dingee & Conard Co., wholesale trade list; W. Bryce & Co., seeds; Bronson, Hopkins & Co., wholesale list, fruits, &c.; J. C. Schmidt, wholesale list; Lukens Peirce adm'rs, wholesale, fruits, &c; Hasbrook & Bushnell, grape circular; Ellwanger & Barry, set of catalogues, wholesale and retail; Henry Michel, bulbs; J. H. Simpson & Bro., wholesale general list; Merrell & Coleman, wholesale list; Calkins & Brooks, abridged wholesale list; R. J. Halliday, wholesale, plants; Burkholder & Meals, wholesale, fruits, &c.; P. J. Berckmans, wholesale trade list and descriptive retail list; Causey & Pullen, fruits, &c.; Richard Lauer, bulbs; Geo. T. Fish, grapes and stock; R. Cumming & Co., set of catalogues; A. & J. Hammond, fruits, stocks, &c., wholesale; S. B. Parsons & Sons, descriptive list, retail; T. T. Southwick & Co., wholesale, fruit trees; Herendeen & Van Dusen, siberian apples; Thomas Meehan, wholesale general list; S. Boardman & Co., wholesale trade list; F. P. Vergon, Delaware grape; Gould Bros., wholesale list; Hoopes Bro. & Thomas, semi-annual trade list; E. H. Skinner & Co., wholesale list; Otto & Achelis, wholesale trade list; Dr. Jno. E. Ennis, semi-annual trade list; F. L. Perry, wholesale trade list; Massey & Hudson, price list flowers, &c.; Graves, Selover, Willard & Co., trade list; A. Bryant, Jr., wholesale list; McMillan Bros., wholesale list; L. M. Ferris & Son, wholesale list, Sweet & Morey, wholesale fruits; Sinnock & Co., wholesale general list; Sears, Henry & Co., wholesale trade list; H. M. Thompson, select list trade stock; Richardson & Vail, retail list; D. F. Holman & Co., lycopodium circular; Geo. Such, catalogue of rare plants; T. C. Maxwell & Co., wholesale trade list; Bronson, Hopkins & Co., retail list; A. P. Jones, retail flowers; Mattison Bros., wholesale, seedlings; Mahlon Moon, wholesale list; D. Scroder, wholesale, fruits; W. S. Little, semi-annual list; Bird & Gray, wholesale fall list; J. W. Kerr, fall price list; Blair Bros., wholesale price list; Briggs Bros., fall bulbs; Thomas Meehan, tree and fruit seed catalogue.

THE END OF THE WORLD. Orange Judd & Co., announce for early publication, in book form, "The End of the World; a Love Story," by Edward Eggleston, author of "The Hoosier School-Master." ect. Its earlier chapters read like a Western Idyl; but Mr. Eggleston soon gets us into the grotesque scenes which he draws so strongly, and Gottlieb Wehle, the Backwoods Philosopher, the Steam-Doctor, Cynthy Ann, the "Hawk," the "Mud-Clerk," and, above

all, Jonas Harrison, one of the most effective Western character ever drawn, make a rare gallery of original portraits. The speeches of Gottlieb Wehle, Jonas, Cynthy Ann, and the Philosopher are full of a delightful humor, while the Night Adventure of August, the Mob Scene, the life-like description of gambling in the saloon of a Mississippi steamboat, are drawn most vividly. The interview at the Castle can hardly be read without tears, and the chapters entitled "The Last Day" and "The Midnight Alarm" contain pictures of religious excitement such as can not be found elsewhere in English literature, while the mob and "shiveree" scenes are pervaded by a irresistible spirit of fun, and the reader will fully appreciate Bill Day's longing for "somethin' ludikerous." The moral influence of the book is of the healthiest kind.

ELWANGER & BARRY'S CATALOGUES.—We have often had to remark how creditable to accuracy, and how fully instructive are American Nursery Catalogues. Elwanger & Barry's now before us, well illustrate these excellent points.

POPULAR SCIENCE MONTHLY is the title of a new candidate for popular favor, published by the well-known firm of Appleton & Co., and edited by Prof. Yeoman's. We have the four first numbers before us, the last with a very good portrait of Professor Asa Gray, and a succinct account of his life and services. There is a wide field for a magazine of this character in our country; and the numbers before us show that the editor understands his advantages, and is making good use of them.

CATALOGUE OF GEO. SUCH, South Amboy, N. J.—This deserves more than the passing notice usually accorded to catalogues. It comprises rare orchids, balsams, ferns, many of which have required much energy and money to possess; but Mr. S. deserves the support of all enthusiastic horticulturists in his public spirited endeavors to bring so many rich things into public notice.

FLORE DES SERRES. *By I. Van Houtte.*—Those of us who are going down into the sere and yellow leaf of age will remember how very few were the representatives of the Gesneraceous class, in the spring time of our gardening days—*Trevirania caccinea*, and *gesneria* of a few species, were among the chiefly known kinds. Now, the summer decoration of European greenhouses, are chiefly dependent on the numerous genera of this immense tribe. We are reminded again of the many new and beautiful introductions amongst these, by receiving from our good friend, Mr. Louis Van Houtte, of Ghent, Belgium, some files of his *Flores des Serres*, in which these plants show to great advantage. Two Genera of this order, *Nœgelia* and *Plectopoma* are particularly beautiful. The former gives us much the style of the old *Gesneria zebrina*, which we believe is now included in this,—the latter looks intermediate between a *gloxinia* and *Achimenes*—the bushy, branching habit of *Achimenes*, with the flowers of *Gloxinia*. There are also as many shades of color among them, as among the old families which they resemble.

M. Van Houtte's *Flores des Serres*, is one of the most beautiful works on new flowers published in the world. Many who care nothing about cultivating flowers themselves, subscribe for the magazine for the mere beauty of the work as an ornament to their drawing room tables. It can be obtained through Chas. H. Marot, *Gardener's Monthly* office, 814 Chestnut street, Philadelphia, or directly from L. Van Houtte, Ghent, Belgium.

NEW AND RARE FRUITS.

PEAR FROM YORK.—*S. B. H., York, Pa.*, hands us a branch of a pear supposed to be a seedling, on which the fruit are borne in immense quantities. Mr. H. says this is the character of the whole tree, and is its condition every year. The fruit is medium sized, but the quality not of the highest. Pears ripening about end of August and beginning of September are rather numerous, and unless there are some very distinctive features we do not approve of naming and distributing more. In this case we should compare this one with Bleeker's Meadow, which is a free bearing kind of similar appearance and character, and also a tolerably free

bearer, and if it is better than that one in any respect, should decide to name and distribute it.

LINCOLN SWEET APPLE.—*P. H. F., Babylon, N. Y.*, sends a specimen and remarks: "I send you a specimen of Lincoln Apple, sweet, the best which I have been able to procure. You will do me a favor if you will test it thoroughly, and report your opinion in the *Gardener's Monthly* You must make some allowances for an imperfect specimen. The tree is a vigorous grower, on the standard, and so far as I have been able to test its flavor, together with its vigor, consider it a great acquisition.

The other, No. 2, is an apple unknown to me, sour. Please name it."

[The apple was large, and of excellent quality. We regard it as among the best of the early apples. The other was not in good condition when received, and we kept it a few weeks. It did not, however, "come up" to a very high standard of quality. It resembles somewhat the "sheepnose" of Pennsylvania, but is more obtuse than any we ever saw. This variety is, however, very variable in form and character, on the same tree. It may be this variety,—if not, we do not know.]

RICHARDSON PEAR.—The *Prairie Farmer* has received this pear from Jonathan Huggins, Woodburn, Macoupin county, Ill., and says of it:—"It is a variety highly prized by him as a market sort, being a vigorous, healthy and productive tree, and an early and very handsome fruit. Origin, New England. If we remember rightly, this pear was traced back to an old Connecticut tree. Shape, pyriform. Calyx rather large, open. Stem long (1.10 inches) and tolerably strong. Skin smooth, green, covered with numerous darker green dots, and from one-third to one-half covered with a bright brownish-red, something like that of the Louise Bonne de Jersey. Flesh coarse, granulated, dry, sweet. Capsule rather open; seeds, numerous, small. Ripens in July, this year, about the 15th. Must be picked early and house ripened, we presume, inasmuch as our specimens late-gathered, are rotten at the core; third rate in quality. This pear is very handsome and healthy, and will be profitable until public taste improves and asks something else than fine color and bigness."

HOCKETT'S SWEET APPLE.—*Dr Swazey*, in reply to a correspondent, says in *Southern Gardener:*

"In the fall of 1859, we received from Westbrook & Co., of North Carolina, about fifty varieties of their best apples and peaches. The Hockett's Sweet, which claimed to be a native of that State, was one of them. It proved to be all that our correspondent claims for it, *one* of the best, if not the *very best* sweet apple of its season. The flesh is crisp, for a sweet apple, and a little coarse grained; but the flavor is excellent, and the fruit is always fair and sound. Tested side by side with Camack's Sweet and Maverick Sweet, we preferred it to either. Season all September.

THE WESTERN TRIUMPH BLACKBERRY.—Three years ago we saw advertised in a Western paper a new blackberry under the above name, and we ordered a dozen plants which came duly to hand, with a modest bill for the same, amounting to $5, which we promptly paid. The plants were set out and made a vigorous growth, producing a fair quantity of fruit last year, which we thought was of very good flavor, but were not up to the standard for size. The past winter was quite a severe one on all the small fruits, the blackberry not excepted; but our Western Triumph plants passed through uninjured, and are at this time more heavily loaded with fruit than any other sort in our collection. The berries are also large, and so deliciously rich and sweet that to add sugar would be superfluous. The ladies of our household pronounce this new blackberry a "Triumph," especially the dyspeptic portion, who have to deny themselves of the privilege of eating sugar upon fruits of all kinds. If our Western people can succeed as well with this variety as we have, there is no need of sending East for Kittatinny, Wilson and Lawton Blackberry plants.—*Rural New Yorker.*

THE WALTER GRAPE.—A correspondent of the *Country Gentleman*, at Hudson, N. Y., says that while all other varieties of American grapes have been much injured or killed on his grounds, the Walter has entirely escaped injury, even to the very tips of the vines—doubtless in consequence of its perfect ripening of the wood.

THE DR. WARDER STRAWBERRY.—This berry was raised from seed in 1866, and is a cross of the Fillmore and the Victoria Ovata.

The plant is of vigorous habits, foliage large and healthy, not suffering from the extremes of winter and summer; the fruit stem is very

strong, standing erect, high above the foliage, the blossom is staminate, the berry is very large, conical, regular and uniform in size, except the size be enormous, when it will cockscomb; bright red; flesh red, very firm, a good shipping berry, flavor good. Every blossom will perfect a berry, and the last berries are large enough to be sent to market There is no variety that combines so many good qualities, or yields such a great proportion of large berries.

The Dr. Warder commences to ripen about the time the Wilson Albany is in its prime, and continue for nearly two weeks. So that it may be set down as a very late variety, being much later than the Kentucky.

No. 315 or the "Dr. Warder" has been on the fruit tables of the Cincinnati Horticultural Society for the last six years. LOUIS RITZ.

NEW AND RARE PLANTS.

BLOOD LEAVED PEACH.—(*See illustration.*)—We place this under the head of new plants, because its chief position in gardening will be one of ornament, though its fruit, which matures in Philadelphia the end of September, is of excellent quality, though not of large size.

The variety was found on the battle field of Fort Donelson, in Kentucky, and the Southern papers tell that a Southern general, wounded to death, sucked the juice of a peach, and threw the stone into the little pool of his blood by the side of him, from which sprang this tree with blood like leaves. So many of our Northern fruits found by accident in some old fence row, have yet some wonderful history—truly veracious of course—connected with them, that there is quite as good reason to believe this account of the blood-leaved peach, as of most of the rest. Most blood leaved trees lose their fine rich tint in summer. This also does, but less so than many others. During August and Septe ber, when the plant is making its second growth, the growing leaves are nearly as brilliant as in the spring.

We give the following account of its behavior South, from the pen of Mr. Berkmans, in *Rural Carolinian:*

This variety originated in Mississippi, in 1870, and was sent out in the trade, in 1871. In the early portion of the year its foliage is of a deep blood-red color, but gradually fades as the weather becomes warmer, when it assumes a dull green appearance. Young nursery trees, however, retain the peculiar red color upon the ends of their branches until fall. As an ornamental variety it is only desirable during the spring, but, further North, it will doubtless retain its color through the summer.

This year our trees produced fruit, and, to our surprise, the latter is almost colorless in skin and flesh. Fruit, medium, slightly oblong, somewhat flattened; skin white, with a pale red wart and a few pale red spots or stripes; flesh white juicy, well-flavored; clingstone; ripens beginning to middle of August. Undoubtedly a sport from the well-known *Heath Cling* or *White English*, of which it is an early ripening variety.

We would class it as very good in flavor but deficient as to size.

CALOCHORTUS LEICHTLINII.—(*Hook.*)—In bulbous plants California is particularly rich, and one of the finest is the *Calochortus Leichtlinii.* This plant is to be found in most parts of the State, from the Coast Range to the Sierra Nevadas. It seems to seek dry hill sides and flourishes well on the high stony ridges of our mountain ranges. It commences to bloom about the first of May, and continues until the middle of July. It is, as we have said, a bulbous plant, with glaucous grass-like leaves, the flower stalks bearing from two to three flowers. The calyx is formed of three lanceolate sepals, of a somewhat greenish color, streaked with red. The petals are of a pure white, with a purple spot at the base. The flowers generally open in pairs. There are two other varieties of *Calochortus* in California, one a light-yellow, the other a pinkish white.—*California Horticulturist.*

ADIANTUM CAPILLUS-VENERIS DAPHNITES.—This Fern differs in a remarkable degree from all other varieties of the "English Maidenhair," the pinnules of each of the branches being confluent (united,) and the apex of the rachis

dilated, spreading out the ultimate confluent pinnules into a crest-like crispy mass, often to the width of 1½ to 2 inches. Erect in habit, the pinnæ ascending, and the front attaining a height of 14 inches. The stipes is ebony colored, and stouter than in any other form, and the pinnæ are of a blue-green This is the most distinct and remarkable variety ever yet sent out. It received a First-class Certificate from the Royal Horticultural Society on June 27, 1871.

ALOCASIA MARSHALLII.—A remarkably fine new Aroid, related to and much in the way of A. Jenningsii, but differing in having a broad grey band down the centre of the leaf. The leaves are ovate, peltate, attached to erect green stalks, the blades standing almost vertical; while the color is a bright green, marked between the principal veins with broad wedge-shaped blotches of blackish purple. The addition of the silvery band adds very greatly to their beauty. It was imported from India.

BARLERIA DICHOTOMA.—A stove herbaceous plant, with brachiate stems, elliptic-oblong leaves, attenuated at both ends, and roundish terminal and axillary spikes of blue funnel-shaped soemwhat two-lipped flowers, an inch long. It is an Indian species, and has been raised from seed sent from that country.

BARLERIA MACKENII.—This novelty, which was discovered in the colony of Natal, is described by Dr. Hooker as being a near ally of Barleria Gibsoni, which it resembles in the purple corolla, but from which it differs remarkably in the form of the bracts and sepals. The flowers have a funnel-shaped corolla-tube, shorter than the outer sepals, a flat limb of a rich purple color, about 2 inches in diameter; all the lobes marked with a dark purble blotch above the claw, and that on the lower segment edged with a white line. A figure of it has been given in the *Botanical Magazine*, *t.* 5866.

CROTON GRANDE.—A fine bold-habited and free-growing stove plant, having oblong-obovate leaves 8 inches long, and nearly half as much in width, and with a stout footstalk varying from 1 inch to 2½ inches in length. These leaves are, in the young state, of a rich deep green with a yellowish rib, and scattered yellow spots, the stalks being pale colored at the base and apex, where they are also thickened. As the plants gain maturity they become more distinctly veined and spotted with yellow. The present is remarkable amongst the Crotons or Codiæums for its vigorous and bold character, having in fact very much the aspect of a Ficus. It is one of the many forms of Codiæum variegatum which have come from the South Sea Islands.

CYRTANTHERA CHRYSOSTEPHANA.—A new and very distinct species of the Tropical American genus Cyrtanthera, of elegant habit, and conspicuous for the vivid red color of the midrib and nerves of the leaf beneath. The flowers, instead of being disposed in a dense thryse, or in axillary cymes, as in most species of the genus, are collected into a crown-like corymb at the tips of the branches and are of a bright golden color. It is a plant of easy culture, and a most desirable acquisition, for it produces its showy flowers in mid-winter. Figured in the *Botanical Magazine*, t. 5887.

DRACÆNA SPLENDENS.—A remarkably distinct ornamental stove plant, of dwarf and compact but free-growing habit, densely furnished with short oblong acute recurved leaves, about 9 inches long and 4 inches broad, arranged in a spiral manner, and having winged footstalks. The color is a deep bronzy green, breaking out in the young growth into bright rosy carmine, the petiole and base of the leaves margined with the same color. The brighter coloring appears sometimes in stripes, and sometimes occupies the whole surface, while the recurved character of the densely-set foliage gives the plant a flat, almost table-like head. It has been imported from the South Sea Islands. It was awarded a a First-class Certificate by the Floral Committee of the Royal Horticultural Society.

ECHEVERIA ABYSSINICA.—This fine greenhouse succulent, of branching shrubby habit, was brought from Abyssinia by Major Leveson at the time of the Abyssinian war. The plant has much the habit of some of the large-leaved shrubby Sempervivums, but being described by my correspondent as bearing red flowers, it has been doubtfully referred to Echeveria, with which it sufficiently accords in habit. The stems are as thick as one's finger, and terminate in flattened rosulate heads of spathulate acute leaves, 3 to 4 inches long, of a pale glossy green color, and finely ciliated at the margin. The

plants form a branched conical mass a foot and a half high, and as much through, and will be a welcome addition amongst succulents.

BEGONIA CARMINATA.—An elegant tuberous-rooted Hybrid of the "boliviensis" group. The leaves are stained with a coppery brown tint between the veins, while the flowers are large, of a pretty delicate salmony hue tinged with rose, the males having four oblong segments upwards of an inch long, and the females five petals of smaller size. The Plants come into Flower while quite dwarf, and continue blooming in the most profuse manner.

NEW CLEMATIS.—*Albert Victor.*—Extra fine shape, each flower having eight petals, deep lavender color, with brown ribs down the centre of each petal, the ribs changing to white, or nearly so, as the flower expands. Very free-flowering, and of a superb, thick, velvety texture.

Lady Londesborough.—Very fine shape, each flower having eight petals, color a delicate silver-grey, with white stripe down the centre of each petal; a pink stain at the base of the stamens gives it a pretty appearance. Good substance, and very free-flowering; constitution very robust.

Miss Bateman.—Good shape, each flower composed of eight petals, color pure white, with distinct band of glaucous cream-color down the centre of each petal. Very free, and altogether a magnificent plant.

FOREIGN CORRESPONDENCE.

The markets in Liverpool are well supplied with vegetables, fruits and flowers, and especially fish. Salmon by the cwt., if you want it. The pot plants in the markets, either in Liverpool, Birmingham or Bristol, are about the same price for the same class of plants, as in New York, except in the Spring, when, for bedding out purposes, they are cheaper. Still, if the demand was as brisk on this side as it is on yours, more money could be made here in the business by an active go ahead man, when you consider rent, wages, climate, fuel, &c The demand is good, and the gardens far better adorned than they are with you (excepting vases); because, if you buy one dozen Fuchsias, one dozen Scarlet Geraniums, one dozen Variegated Geraniums, two dozen Calceolarias, two dozen Lobelias, and plant them out the first of May, then they are in constant bloom till December. Consequently there are no blanks to fill. Then on the side borders, plenty of Asters, Stocks, Balsams, Mignonette, with a plant of Passiflora cœrulea, and two or three Tropœolum peregrinum, (Canarybird flower) for the piazza; and you have nothing to do but pull the weeds out, and give them a watering once a month, *if it don't rain for that time*, which is a very unusual occurrence, I assure you, although it has not rained in this locality for the past seventeen days, and there is not the least indication of it, yet it has afforded the farmers a fine opportunity of securing their grain crops. More than two-thirds is already stacked or housed, and the crop is very heavy and of fine quality. This will make up, in a measure, for the short crop of potatoes, which, decidedly short it will be, according to report and observation. The "rot" is almost as serious as it was in 1854-5; still at present they are cheap, two cents per pound. In spite of different names some of the market gardeners give them here, I must inform your potato growers, that the very best eating potato they have in the market now, is our "*Early Rose.*"

I eat them for dinner every day; can afford to at two cents per pound, when the first one I tasted was one dollar.

I saw a new cucumber here for the first time, on Mr. Meredith's stand in the market, four feet six inches; from China, called the "*Sooly qua.*" They boil it there, and use it with rice. I know nothing of its edible qualities, but think it would be an ornament in a vinery or conservatory, and could be grown in a moderately cool

temperature. As regards Cucumbers in general for forcing, the best that I have seen are the three following, viz: *Marquis of Lorne*, British Challenge, and Blue Gown; the last a new one which promises well, but would prefer the first; a fine fruit, straight as an arrow, two feet long, green and crisp.

Passed on rapidly through green fields, and fields of waving corn and barley, to Dudley, on the confines of Worcestershire and Staffordshire, part in one county, part in the other. The most interesting feature here are the ruins of the castle. As far as reliable history goes, the foundation is traced back about nine hundred years, but the ultimate dismantling occurred during the war between Charles and Cromwell. It was the last stronghold that held out for the unfortunate monarch.

As you have an "Academy of Natural Science" in Philadelphia, it may interest some of its members to mention that there is a rich deposit here under the castle and castle hill, in the Wenlock lime stone, of fossils belonging to the Silurian system. There is in the town a museum, and Mechanics' Institute; among other objects of interest is a glass case or cases, if you please, *six feet wide and fifty feet long*, containing these fossils. They are represented by seven species of the order of Zoophyta; five species of Radiaria, (one ouly of the order found now); four species of the order of Conchifera; two species of the order of Mollusca; five species of Crustacea; and one of Pisces.

Nothing much of interest here in the horticultural department. Earl Dudley's seat is four miles from here; passed by it; saw some fine oaks and elms in it, and near by, close on the public highway, saw what I thought were hencoops, thirty-eight of them—counted them; asked the driver what they were; said they were young pheasants being hatched out by *hens*. This was in a grass field. Adjoining, divided by a wire fence, was a field of buckwheat of about three acres, fully ripe. On the other side was a dense wood, and it seems after they are out of the shell, they go into the buckwheat patch and feed, and when they get strong enough to feel their *oats*, or rather their buckwheat, they go into the woods and join their brethren.

I find I am digressing from horticultural subjects, as I promised you, but will try to atone for it when I get into a more congenial region, which I hope will be before you receive my next letter.

J. W. W.

HORTICULTURAL NOTICES.

PENNSYLVANIA HORTICULTUAL SOCIETY.

In our last we noted that on account of repairs to the Hall—doubling its capacity for exhibition purposes—the annual meeting would not take place till October. It is now announced that there is a postponement for one week more. The time now—October 22 to 25.

KANSAS STATE HORTICULTURAL SOCIETY.

At a late meeting it was

Resolved, That this society appoint three delegates to collect and exhibit Kansas fruit next Fall at the meeting of the Pennsylvania Horticultural Society at Philadelphia. The committee appointed being Dr. W. M. Housley, Dr. J. Stayman and J. C. Vincent.

HORTICULTURAL SOCIETY EXHIBITION AT LOUISVILLE.

Louisville, like Nashville and Cincinnati, is a first class horticultural centre. A correspondent kindly furnishes us with the following account of the recent exhibition there:

THE KENTUCKY HORTICULTURAL SOCIETY.

One of the most interesting and admirable features of the Exposition is the display of fruit

made by the Kentucky Horticultural Society. The tables, sixty-five feet in length, have been filled to overflowing with specimens of fruit which were deserving the highest praise. These tables are under the direct charge of the most prominent horticulturists in this and adjoining counties, viz.: Messrs W. H. Cox, Chairman; J. S. Beatty, C. C. Cary, H. S. Duncan and W. J. Lee. Each of these gentlemen have faithfully represented the interests of the Society and others.

At the head of the tables is the display of that well-known nursery firm, Messrs. S. L. Gaar & Cox, Anchorage, Ky., composed of seventy-five varieties of apples and thirty-five varieties of pears. This display is splendid, and should be seen by every lover of fruit. It is highly commendable to the firm, and their efforts to have the choicest and most approved varieties for our Southern country should be appreciated by all.

Next to this display are twenty-five varieties of the most tempting and delicious-looking grapes from Thos. S. Kennedy, Esq., Fairview, near Louisville. Mr. K. is a thorough horticulturist. He makes a specialty of native grapes, and may well be considered as having the best collection in our State.

Mr. J. S. Beatty of Shelby and Bullitt counties, exhibits twenty-seven varieties of apples, eight of pears and five of peaches. They are most excellent, and compare fully with any grown.

Mr. H. S. Duncan's collection is a varied assortment of the best sorts, and attracts considerable attention.

W. A. Richardson, Esq., of this city, has the largest specimen bunches of black Hamburg grapes, grown under glass, we have seen this season.

Mr. J. Sacksteder has a most creditable display of native grapes, grown on his farm, at Pewee Valley. He also has his specialties, the Ives' Seedling wine and brandy, which the chairman is very liberal in testing with his friends.

Mr. W. J. Lee, of Bullitt county, exhibits very large specimens of the most approved varieties of apples, pears and peaches.

Mr. Jacob Johnson, a well known and venerable horticulturist, has a very choice assortment of apples, peaches, pears and grapes.

Mr. George Schwartz, of Louisville, has two baskets of grapes which would have tempted Eve if they had been in Eden, instead of apples.

A double or twin watermelon was exhibited from Jeffersonville, Ind., which was a real natural curiosity.

Several fruit-growers in Indiana have exhibited very nice specimens.

CHAMPAIGN HORTICULTURAL SOCIETY.

At the last July meeting of this Society, the subject for consideration being "Money in the Orchards," the regular essayist not being present, the Hon. M. L. Dunlap ("Rural") was called on to state his views on the subject. He said one of the greatest mistakes made by most persons in planting an orchard was, too many varieties were planted. Summer apples should be planted in limited numbers, as also should sweet apples; and Winter apples should make up the bulk of the orchard. He finds that red apples sell better than those of other colors, but the yellow ones are the richer. He also finds hand-picking and careful handling to be the most profitable way of marketing his fruit. Summer apples should be put up in one-half bushel boxes; but barrels are better for Fall and Winter varieties, which should be pressed in by screw or hand, to prevent bruising in handling and shipping. Winter apples should be picked early, or as soon as they are ripe and begin to fall, and put away in a cool, dry cellar or cool room, and they will keep better than when left on the tree or ground until late in the Fall. He would name Sops of Wine and Red Astrachan for Summer, Golden Sweet and Snow for early Fall, Sevel and Stannard for late Fall, and Jonathan, Benderis and Smith's Cider for Winter, with Willow Twig for late keeping. He does not think these the only good varieties, but that they will pay for growing. It adds to the profits of orcharding by working the unmarketable apples into cider.

The show of fruits was fine, consisting of apples, cherries, and apricots. The Society adjourned to meet at "Rural Home" on the last Saturday in August. After the adjournment the Society did ample justice to a bountiful repast, spread by the committee, Messrs. Adams, Howell, and Larned. This Society continue to think themselves a live institution and undoubtedly with truth. It is operated by live men. —*Western Rural.*

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XIV. NOVEMBER, 1872. New Series, Vol. V. No. 11.

HINTS FOR NOVEMBER.

FLOWER GARDEN AND PLEASURE GROUND.

Friends who have made the tour of Europe this year tell us that the taste for hardy herbaceous plants seems, to pervade all classes of the community. This is an illustration of history repeating itself. Fifty years ago there was little of any other kind of out-door flower gardening. The "knots" and beds, and borders, were for the especial accommodation of hardy herbaceous plants and nothing else. Then came the fashion of having only one kind of plant in a bed, so as to make a mass of bloom during the summer season, and these were arranged in a system of small beds so as to afford the cultivated taste an opportunity to display the various harmonies of color. This was the massing period. The ribbon age came next, in which not merely flowers but colored leaves were brought into use, and the harmonies were effected by various kinds of plants arranged in the same bed. All of these fashions have their merits. Flower gardening rarely has ever in history afforded more gratification than during the few past years when these methods of culture have been pursued. The evil which accompanied them was in nearly banishing from cultivation the beautiful and interesting tribe known as hardy herbaceous plants. From early spring till late in the fall some of them were in blossom,—and then there was always something in or about them to attract attention or excite curiosity or deeper thought, which no system of "bedding" plants ever did, and their return to favor is an event to be rejoiced over. We shall be glad to do all we can to encourage the taste for them.

In Europe many of the most popular of hardy plants are from American woods and prairies, and as we must of necessity it seems copy after Europeans in what they first see fit to do, it will be quite in the fashion to go out into our fields and fence rows and collect the beautiful things we find growing there. One need hardly fear to hear the remark from some over fastidious lips that we are growing only "wild things," for there is a lamentable ignorance of everything but the fashionable in our community. The region of the Wissahickon near Philadelphia teems in beautiful wild plants amongst its magnificent scenery, and hundreds of thousands are annually attracted by the reputation of the tract to visit its charming lanes and drives every year; and yet we could take of the interesting plants which grow so profusely here and transplant them into our gardens, and feel quite sure that of the mighty hosts which visit the Wissahickon region annually, barely one would recognize any plant as a former companion of travel, or believe that they were anything else than rare exotics from a foreign land.

Another matter of interest in regard to collecting hardy herbaceous plants is, that there are a large number of rare native plants not yet in cultivation, which many an owner of a first-class collection would give a good deal to possess. A collection from one's own neighborhood would therefore often be really one of the most valuable one could possess, and be the foundation of a series of exchanges with others, which would soon swell a little collection to one of the best.

In the culture of herbaceous plants it is well

to remember that generally a part dies every year. They seldom come up in exactly the same place every year, but a bud or runner pushes out and the old part dies. Though all herbaceous plants move in some such manner, they do not all go directly underground, but make bunchy stocks just above ground. In their native places of growth they manage to get covered with decaying leaves from the woods or shifting sands on the plains, but in cultivation nothing of this kind can be naturally accomplished, and unless art comes to aid the plant they soon die away. An Auricula, a Primrose, or a Carnation is a good illustration of this. In the two former a new crown is formed on the top of the old one, and as the lower parts in time die away, unless new earth is drawn up, success with such flowers will not be great. The best plan is to take up and replant every few years, or cover the running parts above ground with earth, so that they may have a chance to get new roots from the advancing stocks. This is noticed here at this season to show that earth is the natural covering for herbaceous plants, and therefore one of the surest ways of preserving them safe through winter is to draw earth over them. In the spring they can be unearthed and then divided and set a trifle deeper than before, which is all they want. We are often asked how to preserve Carnations, Chrysanthemums, Pansies, Phloxes, Hollyhocks and so forth, safe till spring. The principles here laid down will explain the practice.

Pampas Grass, Tritoma uvarias and other half hardy things do much better when left out all winter and protected. The best protection is a dry-goods box filled with leaves. Many plants might be saved in this way, and the increase beauty of the plants would pay well for the trouble These ugly boxes may be objectionable, but probably the time may come when it will be thought worth while to have neat cases made expressly for them.

One of the most anxious of questions with many just now, is, will our trees suffer again as so many did last winter? We hardly expect to see again as we saw last year, Picea Pindrow, Picea Pinsapo, Abies Smithiana and similar plants usually deemed at the best but half hardy, entirely uninjured, while Hemlocks, Arborvitæs and Norway Spruces along side of them were entirely destroyed. We suppose, however, after what has been said in our magazine, that our readers generally understand the cause. It is hardly likely that the same set of injurious causes will, for many years, if ever, occur again.

At any rate, we know that the best safeguard against this terrible set-to of the agents of death, is to give to all our trees the highest vitality possible In all cases where trees are growing in very dry ground, or under the shade of trees, or in any condition where some of the best elements of healthy growth are wanting, a top dressing of manure is invaluable. As a rule, all trees like manure as well as corn or potatoes do, and if one has it to spare, there is scarcely anything which may not be benefitted by an application on the surface at this season.

The planting of trees will still continue to engage our attention at every favorable opportunity. Many prefer at this season to remove trees in the winter by the "frozen ball" system. There is nothing gained by this practice. To those unacquainted with this mode of planting, we may as well describe it. Just before frost is expected, a trench is dug around a tree a few feet from its base, leaving the tree, so that with a rope at the top, it can be easily drawn over. A hole is then dug for it in the situation desired. When the "ball" has become frozen through around the tree, it is removed to the prepared hole; and, when a thaw comes, the soil is filled in around it. We have said there is nothing gained by it, and there are many disadvantages. If the tree has been removed a "time or two" before, as most nursery trees have, it will have an abundance of fibres near the stem, and can be successfully removed without much regard to the "ball of earth," either in fall or spring. If it has never been removed before, that is a tree growing naturally, it will have no fibres at its base, and so no "ball of earth" can preserve them; so that a tree which can be moved successfully on this freezing system, can be as successfully done without it. The disadvantages of it are that it exposes the injured roots for a long time to the injurious action of the frost and the elements, besides the frequency of the operation being improperly done by several attempts being made at its completion. We have given the system a fair trial, and have done with it. The main object should be to preserve all the roots possible with the tree, keep them moist and preserve from injury, then go ahead and don't wait for frost.

FRUIT GARDEN.

No wonder those who watch the proceedings of Pomological conventions, are often puz-

zled by the apparently contradictory opinions offered as to the merits of various kinds of fruits. The facts are no doubt accurately reported. One for instance asserts that his Vicars are worthless,—his next door neighbor, perhaps, declares it one of the finest varieties he ever tasted. We have often noticed that both of these classes are right. The only thing which astonishes us is, that the one who has the inferior fruit, and knows his neighbor has it of the highest excellence, should condemn *the variety*. But this is the way of the fruit growing world. Each one thinks his knowledge of culture perfect, and if the fruit does not come up to the first-class quality in his hands, all other people's experience is ignored,—the variety must be worthless. We have a friend of this class. Some first-class varieties on his grounds he calls worthless. The fruit is never of the size represented in the books; and when it becomes soft, is insipid. We told him that his trees lost their leaves too early. They were suffering from leaf blight; but he thinks the leaves fall early because they "ripened early." We have never been able to convince him that this early falling of leaves is of the slightest injury. On his grounds is a Vicar of Winkfield, which being out of the way of his careful culture, bears fine fruit every year; but this year about the usual time of the leaf blight's appearance, some caterpillars, carelessly treated, eat off the leaves of one side of the tree. On this side he has half-sized worthless pears, on the other half, fruit of the usual excellence. Now he is satisfied that the leaves cannot remain on too long healthy for the tree's good. How we wish we could impress this lesson on all fruit growers! We have often given our opinion that this blight, which causes the fall of the leaf before the maturity of the fruit, is a greater foe to pear culture than the fire blight, which destroys a whole tree in a night, ever has been. Those who have pears in this condition should have them grafted over again with sorts which have a better habit of holding their foliage. This is the most certain remedy we know.

Pear trees that have not been judiciously summer pruned will require some little in the early winter months. By far too many branches are left on most trees.

When the tree is in leaf, the one branch smothers out the other, and, remembering what we have already said about the value of healthy leaves, few leaves arrive at that perfection necessary to perfect the best fruit. Therefore, prune out enough of the weaker ones to give the rest every chance to develop their leaves to the fullest extent. Also prune so as to assist the plant to a conical form, as this enables the light to act better on all parts of the tree leaves. If trees have been neglected, in pruning too severely to get them to this shape, the result will be to make them throw out shoots still more vigorously from near the parts cut away. When these shoots appear in spring, pull them out while young with the finger and thumb. The current of sap will then flow strongly into the shoots left, and the ratio of growth will in the end be nearly equal through all the branches. The flow of sap through a tree is nearly like that of water through an uneven country. A very little obstruction will turn the course; but that once started soon becomes as great a stream in the new as in the old channel.

Apple trees have a habit, when old, of pushing out sappy shoots along the main branches. These should be cut away in addition to a similar thinning as recommended for the pear.

Dwarf apples and dwarf pears should be examined now to see what the borer is doing for them. This is the time when they do the most destruction, as they are boring down into the stems for winter protection. A cut with a jack knife *up and down* the stems so as to avoid girdling as much as possible is the most certain destruction. Then, if in spring, before the parent insects begin to work, oiled paper, or rather tarred paper, be put about the stem near the ground they can be *kept out*. It is strange that with so little time as borer hunting takes, so many thousand trees should be allowed to die from their attacks every year.

Above all, for both apple and pear orchards, we bespeak a liberal dressing—a top dressing of something or another. If no manure is to be had, even common road sand will be found to have a beneficial influence.

Poverty of the surface soil is oftener a cause of fruit failure than "grass," "change of climate," or many imaginable ills brought up from some ghostly cavern of thought to cover up the poverty of pocket or of industrial inclinations.

Strawberries are much better when protected through the winter, no matter how "harey" they may be. Very coarse strawy manure is the best material which can be raked off in early spring. A few inches is sufficient, just enough to keep the sun off when frozen, which all our

readers know, by this time, is the chief cause of loss by frost.

VEGETABLE GARDEN.

It is little use to attempt to grow vegetables well, unless the soil is well treated. They may be and are grown on thin soils, not only at a great expense for manure, and at a great risk of dying out in a dry season, and of having the roots rotted out in a wet one. In these parts where the frost has not yet been severe enough to injure the celery crop, it may have another earthing up. Care must be exercised in the operation not to let the earth get into the hearts of the plants, or they will be liable to rot. Where the plant has evidently finished its growth for the season, measures should be taken to preserve it through the winter. For family use, it is probably as well to let it stay where it is growing, covering the soil with leaves, litter or manure, to keep out the frost, so that it can be taken up as wanted. Where large quantities are frequently required, it is better to take it up and put it in a smaller compass, still protecting it in any way that may be readily accessible. It always keeps best in the natural soil, where it is cool and moist and free from frost, and whatever mode of protection is resorted to, these facts should be kept in view. Beets, turnips, and other root crops, will also require protection. They are best divested of their foliage and packed in layers of sand in a cool cellar. Parsnips are best left in the soil as long as possible. If any are wanted for late spring use, they may be left out to freeze in the soil, and will be much improved thereby. Cabbage is preserved in a variety of ways. If a few dozen only, they may be hung up by the roots in a cool cellar or buried in the soil, heads downward, to keep out the rain, or laid on their sides as thickly as they can be placed, nearly covered with soil, and then completely covered with corn stalks, litter, or any protecting material. The main object in protecting all these kind of vegetables is to prevent their growth by keeping them as cool as possible, and to prevent shrivelling by keeping them moist. Cabbage plants, lettuce, and spinach sown last September, will require a slight protection. This is usually done by scattering straw loosely over. The intention is principally to check the frequent thawings which draw the plants out of the ground.

In making new vegetable gardens, a southeast aspect should be chosen, as far as practicable. Earliness in the crops is a very great desideratum, and such an aspect favors this point materially. Too great a slope is objectionable, as inducing too great a run of water in heavy rains. The plots for the crops should be laid off in squares or parallelograms, for convenience in digging, and the edges of the walks set with box edging. If water can be introduced, it is a great convenience.

Sometimes broccoli does not head before there is danger of frosts, especially if growing vigorously. If taken up with small balls of earth, and set in a damp cellar, they will still perfect themselves.

Asparagus beds, after the tops have been cleared off, are better covered with litter or stable manure. The plants shoot easier for it next season.

When the ground becomes frozen, or no other work offers, preparation can always be made for advancing prospective work when it arrives. Bean-poles may be made; and if the ends are charred, and then dipped in coal tar, the commonest material will be rendered nearly equal to the best cedar.

COMMUNICATIONS.

TREES MOST SUITABLE FOR STREET PLANTING.

BY MR. J. RICHARDSON, LOUISVILLE, KY.

After a series of observations, extending through some years we can recommend the following trees as most likely to give satisfaction when planted for shade in cities and towns.

The Elm, which has proven peculiarly hardy, and able to stand the smut and smoke of cities, is a slow grower, but a very healthy tree, and will, with care and a little cultivation, arrive at a sufficient size in a few years to afford good shade, and when well developed presents a fine appearance. Some specimens of Elms which grew in

the original forests are still left intact on the streets, and seem to flourish as vigorously as they did with their original surroundings.

The European Linden. a stiff formal tree, but easily cultivated, has proven a good tree for ornamental purposes, and since the introduction of water into our Western cities, kept clear of worms by daily sprinklings. We should recommend the Linden for more extensive cultivation, as it never grows to an inordinate size, and has proven a success where planted.

The Sycamore and Cotton-wood are rapid growers, and have been planted quite extensively throughout the West. These trees are objec tionable on some accounts, but their rapid growth affording an early shade will always recommend them to persons desiring shade at the earliest time. In alluvial soils the Cotton-wood grows luxuriantly, and although no great favorite, we think it not only meritorious for rapidity of development, but also for the beauty of its bloom and foliage.

The soft Maples are quite slow growers when planted among bricks, but they seem to flourish, and as the list of trees that have any adaptability to city life is rather limited, we cannot exclude the Maple. The Sugar Maple does not succeed in the city, but in our villages does well. This tree in proper soil and location is certainly the most beautiful of all the trees planted for ornamental purposes.

The Silver-leaved Poplar, when healthy and uninfested by the borer, makes a handsome shade tree; planted among brick pavements, it does not sucker, and when the soil is rich, the foliage presents a rich, dense appearance.

The Honey Locust is a very hardy, rapidly growing tree, but with the exception of some fine specimens left standing from the original forest growth, we have never seen it planted for shade. This tree we have no doubt would answer an excellent purpose, as we find it springing up along highways and railways, seemingly indifferent to its surroundings. One objection, however, could be urged against the Honey Locust, and that is on account of the fruit which offers a strong temptation to boys to batter the tree up with sticks. We all know the common Locust as an ornamental tree and a hardy one, but its brittle scraggy aspect certainly does not recommend it.

Some kinds of trees can be planted in yards and so located as to overshadow the side-walk. Some species would hardly flourish among bricks, and yet when set out in yards and some attention bestowed on keeping them mulched and fertilized, occasionally do well. The Ca talpa, Paulownia and some of the hardier Oaks and Ash-leaved Maple, when planted in yards, grow well, and will in a few years give good shade.

Some hints about planting trees. Spade the ground up thoroughly for some distance around the spot where you are about to plant. Plant your trees only deep enough to give them support until the roots get well started. If planted on a sidewalk bounded by the Nicholson or other pavements containing gas tar, set them as far as the law allows away from the pavement. Mulch the trees for some years, and replace the bricks loosely so as to allow moisture to penetrate. Procure trees from the nursery and not from the woods. If you can dispense with boxing around trees it would be better; at any rate, use light, airy protection when necessary.

LILIUM AURATUM.

BY J. B.

A sight worth seeing. To any one fond of rare and beautiful flowers; it would have been worth a trip of ten miles to have visited J. B. Townsend's beautiful residence on City avenue and Pennsylvania R. R., West Philada., to have seen a gorgeous clump of Lilium auratum, 3 to 4 feet high, with over a dozen flowers on a stem, and not less than a dozen stems in the clump. Soil, a shelly, sandy, brown soil, dug out about 2 feet deep, and mixed wi.h rotten manure. Site, high and dry. Also a beautiful lawn tree, Aralia japonica, seldom seen; will be in full flower in September, making a fine contrast among clumps of tropical leaved plants, with its enormous leaves and large panicles of white flowers. No suckers have ever come up in the sod where it is growing, but bears seed abundantly when it flowers.

ASPARAGUS CULTURE.

Effects of the great drought in Southwest Tenn.

BY DR. SILAS T. GILBERT, OF MEMPHIS.

An experiment which I performed on one of my Asparagus beds this year bears out the truth of the statements made by you and Mr. Sargent and Mr. Ravanel, in regard to the beneficial effects derived by the prevention of seeding of this vegetable.

One of the beds, forty by three hundred feet, had, this spring, a heavy dressing of fresh livery stable manure and grocer's refuse salt. The weeds commenced springing up rapidly before the cessation of cutting for market, and had to be freely hoed. When left to itself comparatively the bed became very foul. Just as the most forward plants commenced seeding, I mowed the whole plat off clean; again growing to this stage and so filled with great careless weeds, I became disheartened at the hand pulling process, and mowed off cleanly the second time. The weeds and grass have been in a measure checked, but the Asparagus is growing rapidly, and some stalks are blooming; each growth is more luxuriant than the preceding one; and this bed appears to a much better advantage than another mowed over later and only once. Indeed the second growth was as high as my shoulder, and the third is in many places already as high as my head. Before reading Mr. Ravanel's remarks I supposed that the same roots had sent up three seed stalks. May this not be really the case? Independent of the gain to the plant, the labor saving of this mowing process is a great saving of time and trouble. Is it not possible to propagate from the offshoots of a clump of roots? Is Mr. R. quite right when he says that seeding is the only way possible? I do not deny it, but suspect he is wrong.

We have at least arrived at the end of the most oppressive heat and most prolonged and disastrous drought ever known in this section of the country. You can scarce credit the fact that not only nine men died of sunstroke in our little city of only sixty thousand inhabitants, (if that many) but *mules* actually dropped and finally died. Upon a hill where I have a vineyard of eighteen hundred vines, the earth became so dry it would not pack in a post-hole digger; the implement would only loosen the soil in the hole.

As we hope to never again experience the phenomenon of only one rain in nearly three months, it behooves us to put on record so thorough a trial of the ability of certain things to withstand the effects of drought and heat The upland soil all about the immediate vicinity of Memphis is a thin mould lying on a stiff reddish yellow clay, which is noted for the excellent brick made of it, but yet is charged with an astonishing amount of mineral plant food, and is rendered quite fertile by subsoiling and other judicious management.

Strawberries.

Plat No. 1 is a worn, steep hillside of about two acres extent. The following are the proportions of each variety killed by the drought: Triompe de Gand, four-fifths; Wilson's, two-thirds; Boyden's No. XXX, Ida and Downer's Prolific, one-half; Lennig's White, two-thirds.

Strawberries; proportion killed by drought, set last fall and this spring:

250 plants of Golden Queen, all lower leaves sunburned, but not a plant lost.
240 Napoleon III, 24 killed.
240 Dr. Nicaise, (apparently identical with the above sort) 22 killed.
45 Burr's New Pine, 13 killed, all badly sunburned.
30 Lennig's White, 30 killed, all badly sunburned.
80 New Jersey Scarlet, 29 killed, all badly sunburned.
45 Colfax, 34 killed, all badly sunburned.
35 Kramer, 26 killed, all badly sunburned.
67 Triomphe de Gand, 68 killed, all badly sunburned.
800 Jucunda, 733 killed, all badly sunburned.

In another plat of steep hillside, two acres.
Downer's Prolific, lost one-fifth.
Wilson, lost ¼.
Ida, lost ⅓.
Green Prolific, lost ½.
Agriculturist, 16 stools, lost 7.
Kentucky, 141 stools, lost 19.
Boyden's No. XXX, 60 stools, lost 26.
Philadelphia, 68 stools, lost 19.
Longworth's Prolific, lost ½.

On an old bed of Wilson's, a rich bottom, one-eighth was killed.

Raspberries.

Those Blackcaps in the orchard were but slightly injured; those out in the sunshine fared badly, especially Davidson's Thornless, but I think I shall not lose a stool. The Philadelphia dropped every leaf, but I can find no canes thoroughly dried up; it is to be hoped none are killed.

Currants and Gooseberries, which never do much good here, have shut up shop above ground.

The Wild Goose Plum trees never winced a moment, but other sorts, and cherry trees, especially the latter, have ceased growing, and have already shed half their leaves. Wild Goose on peach roots have outgrown and done better than those on plum roots.

Winter before this last I planted out two and

a half acres of peach trees on a plat of ground rich and deep, except in one corner, which was stiff, shallow and poor. Having three dozen surplus trees, I set them in a patch of young clover, and left them to take care of themselves on the poor stiff clay. Where the trees sent their roots deep down and obtained plenty of nourishment and *kept cool*, they have been throughout quite thrifty; those which sent out roots only nearly the surface made only a half growth, and when the drought set in they wilted, and long since their leaves look red with the appearance of the trees dying. Trees in the clover came near dying the first year and did not grow at all. This spring they commenced to grow slowly, and all through the drought *they held on to their deep green, healthy leaves, never minding the drought at all.* It is so difficult for them to force their roots into the uncultivated soil, they cannot gather much food; but I cannot assign any other reason for the extreme healthful color of the leaves unless it be that the clover sod *kept the roots cool and moist.*

In my opinion the Napoleon III is the best strawberry for us here. I know that with us the raspberry should always be planted in an orchard, and I think that the strawberry in the South would also do much better if partially shaded. I attribute the late disasters to my crops partly to hill culture; let others say what they please. but I am satisfied from careful observation that the alternate row system with hand cleaning amongst the vines, letting the runners root, is by far the best system for the South. It *will not* do to put negroes in a strawberry patch with hoes in their hands, for they *will* cut up one-third of the hills before the season is over, besides the injury done by thrusting the hoe too deeply under and about the plants everywhere, and dragging away the dirt. A neighbor of mine clears his alleys with horse power, and finger picks the plants in the matted rows; I shall hereafter certainly follow suit. We do not raise small grain here, hence cannot get any cheap straw. Ordinary forest leaves lie too close and blow away so freely that they are worthless, whilst pine leaves are not to be had. Can you suggest any *mulch* where strawberries are raised *for profit.*

TEA CULTIVATION IN THE U. S.

BY MR. JAMES M'PHERSON.

The various public journals every now and then are hinting at the experiments which are being conducted in the States of California, Oregon, Georgia, &c., in the cultivation of tea, and I am pleased to see that many of these reports wear a very hopeful character.

The labor question is without doubt the chief difficulty, and it will be well for those who are interested in experiments to consider how they may best meet it.

So far as the manufacture is concerned, there cannot be a doubt but the U. S. possesses very great advantages, for the machinery already in use may be more readily worked here than in either India, China or Japan. Neither in the manufacture nor in the drying of the tea need any difficulty arise, if a good manager be obtained.

The *picking* of the crop must be performed by manual labor, and for this about fifteen hands would be required to work eight days per annum upon every 1500 plants, giving an average return of 1200 pounds of green leaf, or 300 pounds of made tea. The cost of picking the crop alone may in this way easily be calculated.

As to the cultivation, tea ordinarily takes three years to yield its first crop after being permanently planted out, and it may be advisable to consider whether those in charge of experiments would not act wisely to grow in some low growing crop,—say melons or turnips, tomatoes or beets for example, and so secure a quick return from the land. If this were done the tea would necessarily have to be set out in wide lines to admit of the plow being used between the rows. Manual labor would thus be materially lessened, and the green tops of the intermediate crop could be worked in as manure for tea plant,—a description of manure, by-the-by, which experience has shown to be as beneficial as any. We would be disposed to recommend then that experimentalists should plant their tea in rows 10 or 12 feet apart, and 2½ feet in the rows, and when the shrubs were 4 or 5 years old, every other one in the row might be thinned out, leaving them ultimately at distances of 10 ft. x5 ft.

We suspect that no one cares what his land produces, so long as he receives a good balance per acre, and if it be possible to grow in two crops better than one, certainly we think our farmers will not be slow to perceive it.

On very many of the Indian plantations two crops are pretty regularly grown, one of tea and the other of very rank weeds; we do not recom-

mend any one to follow that plan, but if their experience show that their climate will produce any crop of not more than one foot in height and which will necessitate the use of the plow, between the wide rows of tea, by all means let them try it.

Scarcely any animal will eat the raw leaves of tea. and sheep have been grazed among the shrubs without injury.

DENDROBIUM NOBILE.

BY J. M.

I would recommend bouquet makers to try and grow this beautiful orchid in beds formed within their houses. The beds should be formed by placing a good layer of brickbats or pot-crocks on a dry bottom, and then about equal portions of fibrous peat and sphagnum moss. In this the plants may be set out at any distance, according to size. The advantages are, saving of pots and greater evenness of moisture and temperature of soil, &c. The lights may be drawn off in the climate of Philadelphia when the growth is being ripened. The crop of flowers will depend upon this being well done.

HOT WATER HEATING.

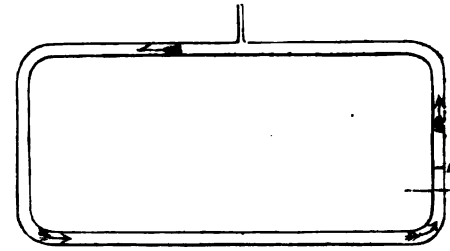
BY DR. J. FISHER, FITCHBURG, MASS.

I have read with much interest the various articles that have appeared in the *Monthly* from time to time upon the above subject, and, while not proposing to enter into any criticism of the reasoning to which, at least, a part of them are open, inasmuch as they are more or less contradictory of each other, I desire to offer my mite in elucidation of the matter, only hoping that the darkness will not grow any more dense in consequence.

I think it may be laid down as an axiom that, *the more rapid the circulation in a hot water apparatus, other things being equal, the nearer perfection will be its working.* Complaints are often heard as to the sluggishness of this mode in heating, and, as a consequence, the variation in temperature by reason of the parts farthest from the boiler being but imperfectly heated. A house properly built and furnished with a well constructed heating apparatus should have neither hot nor cold corners, but should be very nearly uniformly heated throughout during the coldest and most blustering nights of winter. This I am sure, from my own experience, is possible.

In this communication I propose to speak only of the subject of the circulation of water, and deduce therefrom the best mode of arranging the pipes.

The first requisite to a full understanding of the subject is to know the cause of the movement or circulation of the water. If I say it is heat, it is true. If I say it is gravitation, it is also true; and if I say it is expansion, it is again true; but, if I stop here, does any one get an intelligent idea of the way in which the cause produces the effect? With the aid of Fig. 1, I hope to make the matter clear.



(*Fig.* 1.)

Suppose the figure to represent a perpendicular section of a piece of pipe bent into the form of a paralellogram, as shown, and filled with water, except that portion lying immediately below the disc A, and extending down to the dotted line. This space contains air. Suppose the disc to be movable like a piston. Now what will be the result of this arrangement? It will be readily seen that the air being specifically lighter than the water, would tend to rise, but being prevented by the disc from rising *through* the water, it would, nevertheless, rise and carry the disc and water before it and, necessarily, move simultaneously all the water contained in the pipe, in the direction indicated by the arrows. When the air reaches the top of the pipe, equilibrium will be established, and no further movement take place. Suppose that in the place of air the space below the disc contains oil. The result would be the same, only that oil having nearer the specific gravity of water than air has, the movement would have less force, and would, therefore, be slower. Now suppose that instead of either air or oil, the whole apparatus was filled with water, and that heat should be applied to that portion just below the disc A. The result would be that the heat would expand the water at that point, thus rendering it specifically lighter than the rest of the water, and the same movement would take place as in the case where the air or the oil was used, only with this

difference, that the specific gravity of hot water being nearer that of cold water than that of either air or oil, the movement would have less force and be slower in consequence. If the heat be continuously applied, the movement will be continuous just so long as the water in the right side of the figure has a higher average temperature than that in the left side.

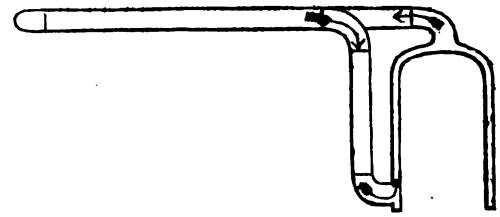
The figure represents essentially a hot water apparatus, the only modification being that in the place of the disc A, that portion to which the heat is applied is either contracted so as to present only a thin sheet of water to the action of the fire, or else is surrounded by fire on all sides as in the various forms of tubular boilers. If now I say that heat causes the circulation of the water, and that gravity and expansion also cause it I think any one will be able to understand how the heat, by expanding the water in the boiler, makes it specifically lighter than the colder water in the dip of the return pipe, and the circulation comes from an attempt of these two to find the point of equilibrium. This attempt is rendered continually abortive by the continued application of heat at one point and the constant radiation and conduction of heat from the pipes elsewhere, and thus the circulation is continuous.

If I have succeeded in making myself understood thus far, it will, I think, be evident that the rapidity of the circulation depends directly upon the difference of temperature between the water in the right and left perpendicular columns in Fig. 1. The difference in the temperature of the water in the upper and lower level pipes in a properly arranged apparatus have no influence upon the circulation, but, as represented in the figure, would act to retard it, inasmuch as the heavier water in the lower pipe would have a tendency to remain at the lowest point.

The point to be aimed at is to so arrange the pipes as to produce this difference of temperature and to render it as great as possible. This is brought about by taking off the flow pipe from the highest part of the boiler and carrying it perfectly level through the entire course of the flow and return, until just as it is about to enter the boiler, when the whole fall or dip is made at once. This is the essential point. Slight modification may be made as matters of convenience. The fire should be placed low down within or underneath the boiler, according to its form, so as to commence heating the water at once upon its entrance. In this way the greatest average heat in the boiler column of water is secured, while the opposing column of the return is all filled with the coldest water, both circumstances being essential to the most rapid circulation.

Directions are often given to lay the flow pipe upon a more or less ascending grade and the return upon a corresponding decent. The slight increase of the circulation thus secured, however, is in practice more than counterbalanced by its awkwardness, and by carrying the pipes away from the floor, whereby the heating is less satisfactory. A friend of mine, wishing to heat a house, but preferring not to excavate a pit for his boiler, so arranged the pipes that the flow pipe made a dip just after leaving the boiler, and the entire remaining pipe was laid upon a level with the entrance of the return into the boiler. As might have been anticipated, there was no column of cold water to oppose to the hot water in the boiler and the water refused to move, and he was obliged to drop the boiler in order to produce a circulation.

Looking at this matter the way I do, I was very much surprised to see a sketch of an apparatus, on page 263 of the September number of the *Monthly*, given as a model, in which the descent of the pipe was gradual from the commencement of the flow to the end of the return. It is true that in such an arrangement there would be a circulation, but a little consideration will show its weak point. Suppose the water, as it leaves the boiler, to be at the temperature of 200°, and that upon its arrival at the bottom of the boiler it has cooled down to 100° The average temperature of the boiler column will not be 150°, the mean between the two extremes, but probably 160° or 170°, according to the arrangement of the fire. The average temperature of the opposing column, which includes the entire length of the pipe, will not be 150°, because the hotter end of the pipe will radiate heat faster than the rest of it, and thus the average will be something less than 150°, say 140° Then we have, as a basis of circulation, one column of water



(*Fig.* 2.)

in the boiler of the temperature of, say 165°, and another one in the pipes of 140°. Now if the pipes were laid level as I have described, and as I have attempted to show in Fig. 2, the basis would be a temperature of 165° for the boiler column, and a temperature of 100° only for the return column. This would give a more rapid circulation than the other by just the difference due to the specific weights of the water at those different temperatures, and which could not be less than one hundred per cent.

THE SEEDING OF THE EUROPEAN LARCH IN AMERICA.

BY C. S. HARRISON, YORK, NEBRASKA.

I wish to correct an impression given in, I think, the August number of the *Monthly*, viz., that American grown European Larch seed would not germinate. The same idea is also conveyed in Bryant's new work. They do germinate and grow finely, and seem to make better plants than those grown from imported seed.

Wm. Hill, a nurseryman of Dundee, Ill., is a Scotchman of large experience. He got quite a quantity of Larch seed from the famous plantation of my friend Scofield, of Elgin. The seed did remarkably well; and Mr. Hill is of the opinion that American grown is the best, if it were not for the trouble of gathering it.

Mr. Spur, nurseryman of Seward, Nebraska, thirty miles east of this place, had excellent success in growing Larch from American seed. His plants have done remarkably well.

Take a Larch cone and cut it through in the centre from the apex to the base, and your knife will cut through six or eight seed, probably. The number of seeds thus laid bare determines the value of the cones.

COLD GRAPERY, WITH NOTES ON FRUITS.

BY A. HUIDEKOPER.

Last year I had a new vinery inclosed in June, and with the old planted in it some of the newer varieties of grapes. Owing to the late setting, few of the vines made over half an inch in diameter in growth. This year I gave them personal attention, watering them freely and shading the glass with a coating of whiting inside, with the exception of every fourth row left clear. I think now some watering would have been saved and the result been equally good if the whole roof had been white washed. The vines broke their buds about the middle of April, and grew twelve feet in the first ten weeks, in addition to the upward growth, which has gone on, the canes have more than doubled in diameter. A few have been permitted to fruit sparingly to test their correctness, and with the following result:

Foster's White Seedling. Ripens with Gros Coulard, about middle of August; sets better than the Coulard, and is, therefore, more valuable. Berry large, amber colored, and transparent. Catalogues rate it higher than Royal Muscadine. It is earlier than Golden Chasselas, and about as good

Lady Downs. Black. This, though remarkable for its long keeping, colors in July, and is fully black by middle of August. Bunch and berry moderate in size; fruit, from present indication, about like Black Hamburg in quality, possibly not quite as good.

Clapier. This, according to the catalogue, ought to be very early, sweet and good. What anybody grows it for I don't know. I never knew of but one grape more lacking in good qualities than it seems to be.

Gros Maroc A very large, not bright looking fruit. fully colored about last of August—not ripe enough yet to test.

General Della Marmora. Bunch and berry medium; amber colored; will be ripe about the tenth of September. This grape and the Duc de Malakoff are spoken of by some one in the *Gardeners' Monthly* for 1861, as being about the largest white grape grown. The Malakoff is one of the most rampart growers I have, but has not as yet fruited. If the vine of Della Marmora I have is correct, I am disappointed in the size of its fruit.

Syrian. A vine sold to me for this proves identical with one I got years ago under the name of the White Nice, and which I rejected last season, notwithstanding its large clusters, because it was not adapted to a cold vinery.

In unsion with the observation of a German peasant, lately promulgated, viz., "that the branch of a vine grows fastest when bent below a horizontal position," you have noticed, I suppose, that vines in graperies always seem to work up their leaders in this way, that is, the top of the principal shoot keeps itself in a curved form, or what might be described as a goose-neck.

Thrips. I do not believe the *Gardeners' Chronicle* can keep these down with a "genial atmosphere." And as for that old story of tobacco smoke, it cannot be used when vines are

in fruit. I preserved the foliage last year by frequent sprinklings of quassia water, but using it too long some of the grapes tasted of the application. This year I used it until the vines were in blossom, and the foliage was all I could wish; but after the fruit began to ripen the insect returned, I think from out of doors. Quassia water can, at this time, only be used on the leaves above the fruit, or where it can be applied without touching it. It seems, in time, to disgust the thrips, and they leave.

THE OYSTER SHELL BARK LOUSE.

ASPIDIOTUS CONCHIFORMIS.

BY E. H. BEEBE.

[*Read before the Jo Daviess County Horticultural Society.*]

Horticulturists in this county have noted the fact that this insect is not rear so abundant on apple trees as it was two or three years ago. At one time it was thought that our apple trees would be entirely destroyed by this pest. Various means was resorted to for its destruction with indifferent success. Yet certain it was that some foe to the Bark Louse was at work, as an examination of scales divested of their eggs proved. It was known that the Lady Bird (beetle) would devour the young when hatched out and moving, but this was for a few days only. Destruction by Cochinelle is limited, they prey only upon the matured insect and eggs. At a meeting of the Horticultural Society, Northern Illinois, held at Mt. Carroll, in December, 1867, Professors Walsh and Shimer both announced the discovery of a mite, Acarus Mali, that preyed extensively upon the eggs of the Oyster Shell Bark Louse. Walsh says, Report, page 44: "I have found on lifting and carefully examining six hundred scales, about the last of October, that at least two-thirds of the whole number were either gutted or were undergoing that process by the minute larva of a mite." So far as known to these two friends are we indebted for the perceptible decrease of the Bark Louse in this vicinity. Eighty miles below us, in the counties of De Kalb, Kane and Du Page, there has lately been a co-worker that is outstripping all others in the destruction of the eggs of the Bark Louse. A very minute insect, with a very big name, "Chalcis Aspidiotus Conchiformis." The first mature insect was discovered by our State entomologist, Dr. W. LeBarron, at Geneva, Kane county, on the 13th of last August. As he has written a full descripton for his report to the State, also for the American Entomologist, I will refer you to them for a detailed description, and submit to you a drawing made by a daughter of the doctor's last summer. I have examined the insect under a microscope, and know the drawing to be correct. Dr. Le Barron subsequently discovered the larva, and I have the pleasure of presenting you with an object, of which our lamented friend, Walsh, said, "I have never met with any such." Dr. Fitch, entomologist of New York, observed and accurately described the larva in his report made in 1854. He says that he supposes it to be the larva of some hymenoptrous insect, probably belonging to the Chalcis family. Sixteen years afterward, Dr. Le Barron's discovery of the mature insect confirms Fitch's surmises. Dr. Le Barron has kindly permitted me to copy from his manuscript report some of the results of his investigations of the work of this larva. From twigs taken from apple trees in Kane and Du Page counties, 844 scales were examined. Of these in 533 the eggs were entirely destroyed by the Chalcis larva; 234 were destroyed by all other causes, and but 57 had more or less eggs under them. There being on an average at least 50 eggs under each Bark Louse scale, it shows that 96,650 Bark Louse eggs were devoured by 523 Chalcis larva. Our friend, J. W. Robson, furnished me with samples from his trees. I forwarded them to Dr. Le Barron. He states: "The apple twigs came safely to hand. An examination shows that the friendly Chalcis has not found its way to your section, at least not in friend Robson's locality. It is gratifying, however, to find that about two-thirds of the scales were abortive from some other cause. I looked carefully for Acari and found a few. I raised and examined 200 scales on the six twigs, and found in 60 of them good sound eggs, and 140 more or less abortive." I have since handed the doctor twigs from other localities in this neighborhood and from La Fayette county, Wis. He could not discover the Chalcis sign. If you will examine these twigs taken from trees in Kane county, you will find a small circular hole on the top of the scale—not ragged or broken (these are made by the Lady Bug) but smooth and perfect, as if drilled. It is from this orifice that the Chalcis fly comes forth to commence its work of destruction by depositing its eggs under the scales of the Bark Louse. We would like if our friends, who have orchards infested with Bark Lice, would send or hand to our Sec-

retary twigs, including this and last year's growth, for examination. We want to ascertain if the Chalcis fly has made its appearance in this county or section. Should they not be found here, an effort will be made to introduce them next spring. We believe it can be done, and are confident, in view of the work we have seen it perform elsewhere, that the Chalcis can eradicate the Bark Louse

DISTRIBUTION OF PLANTS

BY PROF. ASA GRAY.*

The session being now happily inaugurated, your presiding officer of the last year has only one duty to perform before he surrenders the chair to his sucessors. If allowed to borrow a simile from the language of my own profession, I might liken the President of this Association to a biennial plant. He flourishes for the year in which he comes into existence, and performs his appropriate functions as presiding officer. When the second year comes round he is expected to blossom out in an address and disappear. Each president, as he retires, is naturally expected to contribute something from his own investigations, or his own line of study; usually to discuss some particular scientific topic. Now, although I have cultivated the field of North American botany with some assiduity for more than fifty years, have reviewed our vegetable hosts, and assigned to no small number of them their name and their place in the ranks yet, so far as our own wide country is concerned, I have been, to a great extent, a close botanist. Until this summer I had not seen the Mississippi, nor set foot upon a prairie. To gratify a natural interest, and to gain some title for addressing a body of practical explorers, I have made a pilgrimage across the continent; I have sought and viewed in their native haunts many a plant and flower which, for me, had long bloomed unseen, or only in the *Hortus siccus*. I have been able to see for myself what species and what form constitute the main features of the vegetation of each successive region, and record—as the vegetation unerringly does—the permanent characteristics of its climate. Passing on from the eastern district, marked by its equally-distributed rainfall, and therefore naturally forest clad, I have seen the trees diminish in numbers, give place to wide prairies, restrict their growth to the borders of streams, and then disappear from the boundless drier plains; have seen grassy plains change into brown and sore desert—desert in the common sense, but hardly anywhere botanically so—have seen a fair growth of coniferous trees adorning the more favored slopes of a mountain range, high enough to compel summer showers; have traversed that broad and bare elevated region shut off on both sides by high mountains from the moisture supplied by either ocean, and longitudinally intersected by sierras which seemingly remain as naked as they were born; and have reached at length the westward slopes of the high mountain barrier, which, refreshed by the Pacific, bear the noble forests of the Sierra Nevada and the Coast Range, and among them trees which are the wonder of the world. As I stood in their shade, in the groves of Mariposa and Calaveras, and again, under the canopy of the commoner redwood, raised on columns of such majestic height and ample girth, it occurred to me that I could not do better than to share with you, upon this occasion, some of the thoughts which possessed my mind. In their development they may perhaps lead us up to questions of considerable scientific interest.

I shall not detain you with my remarks (which would now be trite) upon the rise or longevity of these far-famed *Sequoia* trees, or of the sugar-pines, incense-cedars, and firs, associated with them, of which even the prodigious bulk of the dominating *Sequoia* does not sensibly diminish the grandeur. Although no account and no photographic representation of either species of the far-famed *Sequoia* trees can give an adequate idea of their singular majesty—still less of their beauty—yet my interest in them did not culminate merely nor mainly in consideration of their size and age. Other trees in other parts of the world may claim to be older. Certain Australian gum trees (*eucalypti*) are said to be taller. Some, we are told, rise so high that they might even cast a flicker of shadow upon the summit of the Pyramid of Cheops. Yet the oldest of them doubtless grew from seed which was shed long after the names of the pyramid builders had been forgotten. So far as we can judge from the actual counting of the layers of several trees, no *Sequoia* now alive can much overdate the Christian era. Nor was I much impressed with an attraction of man's adding. That the more remarkable of these trees should bear dis-

*Retiring Address of Prof. Gray before the American Association for the Advancement of Science, upon resigning the presidency, at the late meeting in Dubuque, Iowa, August 21, 1872.

tinguishing appellations seems proper enough. But the tablets of personal names which are affixed to many of them in the most visited groves —as if the memory of more or less notable people of our day might be made more enduring by the juxtaposition—does suggest some incongruity. When we consider that a hand's breadth at the circumference of any one of the venerable trunks so placarded has recorded in annual lines the lifetime of the individual thus associated with it, one may question whether the next hand's breadth may not measure the fame of some of the names thus ticketed for adventitious immortality. Whether it be the man or the tree that is honored in the connection, probably either would live as long in fact and in memory without it.

One notable thing about these *Sequoia* trees is their isolation. Most of the trees associated with them are of peculiar species, and some of them are nearly as local. Yet every pine, fir, and cypress in California is in some sort familiar, because it has near relations in other parts of the world. But the redwoods have none. The redwood—including in that name the two species of "big trees"—belongs to the general cypress family, but is *sui generis*. Thus isolated systematically, and extremely isolated geographically, and so wonderful in size and port, they, more than other trees, suggest questions. Were they created, thus local and lonely, denizens of California only; one in limited numbers in a few choice spots on the Sierra Nevada, the other only along the Coast Range from the bay of Monterey to the frontiers of Oregon? Are they veritable Melchisedeks, without pedigree or early relationship, and possibly fated to be without descent? Or are they now coming upon the stage (or rather were they coming but for man's interference) to play a part in the future? Or are they remnants, sole and scanty survivors of a race that has played a grander part in the past, but is now verging to extinction? Have they had a career, and can that career be ascertained or surmised, so that we may at least guess whence they came and how and when? Time was, and not long ago, when such questions as these were regarded as useless and vain —when students of natural history, unmindful of what the name denotes, were contented with a knowledge of things as they now are, but gave little heed as to how they came to be so. Now such questions are held to be legitimate, and perhaps not wholly unanswerable. It cannot now be said that these trees inhabit their present restricted areas simply because they are placed in the climate and soil of all the world most congenial to them. These must indeed be congenial, or they would not survive. But when we see how Australian *eucalyptus* trees thrive upon the California coast, and how these very redwoods flourish upon another continent; how the so-called wild oat (*Avena sterilis* of the Old World) has taken full possession of California; how that cattle and horses, introduced by the Spaniard, have spread as widely and made themselves as much at home on the plains of the La Plata as on those of Tartary, and that the cardoon thistle seeds, and others they brought with them, have multiplied there into numbers probably much exceeding those extant in their native land; indeed, when we contemplate our own race, and our own particular stock, taking such recent but dominating possession of this New World; when we consider how the indigenous flora of islands generally succumbs to the foreigners which come in the train of man; and that most weeds (i. e., the prepotent plants in open soil) of all temperate climates are not "to the manor born," but are self-invited intruders, we must needs abandon the notion of any primordial and absolute adaption of plants and animals to their habitat which may stand in lieu of explanation, and preclude our inquiring any further. The harmony of Nature and its admirable perfection need not be regarded as inflexible and changeless. Nor need Nature be likened to a statue, or a cast in rigid bronze, but rather to an organism, with play and adaptability of parts, and life and even soul informing the whole. Under the former view, Nature would be "the faultless monster which the world ne'er saw," but inscrutable as the Sphinx, whom it was vain, or worse, to question of the whence and whither. Under the other, the perfection of Nature, if relative, is multifarious and ever renewed; and much that is enigmatical now may find explanation in some record of the past.

The larger part of the genera of our own region which I have enumerated as wanting in California are present in Japan or Mantchooria, along with many other peculiar plants divided between the two. There are plants enough of the one region which have no representatives in the other. There are types which appear to have reached the Atlantic States from the South, and there is a larger infusion of sub-tropical Asiatic types into temperate China and Japan;

among these there is no relationship between the two countries to speak of. There are also, as I have already said, no small number of genera and some species, which, being common all round or partially round the northern temperate zone, have no special significance because of their occurrence in these two antipodal floras, although they have testimony to bear upon the general question of geographical distribution. The point to be remarked is that a very large proportion of the genera and species which are peculiar to North America as compared with Europe, and largely peculiar to Atlantic North America as compared with the California region, are also represented in Japan and Mantchooria, either by identical or by closely-similar forms. The same rule holds on a more northward line, although not so strikingly. If we compare the plants, say of New England and Pennsylvania (latitude 45° 47′), with those of Oregon, and then with those of Northeast Asia, we shall find many of our own curiously represented in the latter, while only a small number of them can be traced along the route even so far as the western slope of the Rocky Mountains. And these repositories of Eastern-American types in Japan and neighboring districts are in all degrees if likewise. Sometimes the one is undistinguishable from the other; sometimes there is a difference of as great but hardly of as tangible character; sometimes the two would be termed marked varieties if they grew naturally in the same forest, or in the same region; sometimes they are what the botanists call representative species, the one answering closely to the other, but with some differences regarded as specific; sometimes the two are nearly of the same genus or not quite that, but of a single or very few species in each country, when the point which interests us is that this peculiar limited type should occur in two antipodal places and nowhere else. It would be tedious, and, except to botanists, abstruse, to enumerate instances, yet the whole strength of the case depends upon the number of such instances. I propose, therefore, if the Association does me the honer to print this discourse, to append in a note a list of the more remarkable ones. But I would mention two or three cases as specimens. Our *Rhus toxicodendron*, or poison-ivy, is exactly repeated in Japan, but is found in no other part of the world, although a species like it abounds in California. Our other species of *Rhus* (*R. venenata*), commonly called poison-dogwood, is in no way represented in Western America, but has so close an alliance in Japan that the two were taken for the same by Thunberg and Linnæus; who called them both *R. vernix*. Our Northern fox-grape, *Vitis labrusca*, is wholly confined to the Atlantic States, except that it reappears in Japan and that region. *Wistaria* was named for a woody leguminous climber, with showy blossoms; native of the Middle Atlantic States. The other species which we prize so highly in cultivation, *W. sinensis*, is from China, as its name indicates, or perhaps only from Japan, where it is certainly indigenous. Our yellow-wood (*Cladrastis*) inhabits a very limited district on the western slope of the Alleghanies. Its only and very near relative (*Maackia*) is in Mantchooria. The *Hydrangeas* have some species in our Alleghany region. All the rest belong to the Chino-Japanese region and its continuation westward. The same may be said of the *Syringas* (*Philadelphus*), except that there are one or two nearly the same in California and Oregon. Our blue choste (*Caulophyllum*) is confined to the woods of the Atlantic States, but has lately been discovered in Japan. A peculiar relative of it, *Diphyllæ*, confined to the higher Alleghanies, is also repeated in Japan, with a slight difference, so that it may largely be distinguished as another species. Another relative is our twin-leaf (*Jeffersonia*) of the Alleghany region alone. A second species has lately turned up in Mantchooria. A relative of this is *Podophyllum*, our mandrake, a common inhabitant of the Atlantic United States, but found nowhere else. There is one other species of it, and that is in the Himalayas. Here are four most peculiar genera of one family, each of a single species in the Atlantic United States, which are duplicated on the other side of the world, either in identical or almost identical species, or in an analogous species, while nothing else of the kind is known in any other part of the world. I ought not to omit ginseng, the root so prized by the Chinese, and which they obtained from their northern provinces and Mantchooria. We have it also from Corea and northern Japan. The Jesuit fathers identified the plant in Canada and the Atlantic States, brought it in the Chinese name by which we know it, and established the trade in it, which was for many years most profitable. The exportation of ginseng to China probably has not yet entirely ceased. Whether the Northeastern Asiatic and the Atlantic American ginsengs are exactly of the same species or not is

somewhat uncertain, but they are hardly if at all distinguishable. There is a shrub—*Elliottia*—which is so rare and local that it is known only at two stations on the Savannah River, in Georgia. It is of peculiar structure, and was without near relative until one was lately discovered in Japan (in Triwitalavia) so like it as hardly to be distinguishable, except by having the parts of the blossom in threes instead of fours. We suppose *Elliottia* had happened to be collected only once, a good while ago, and all knowledge of the limited and secluded locality was lost; and meanwhile the Japanese form came to be known. Such a case would be parallel with an actual one. A specimen of a peculiar plant was detected in the herbarium of the elder Michaux, who collected it (as his autograph ticket shows) somewhere in the high Alleghany Mountains more than eighty years ago. No one has seen the living plant since or knows where to find it, if haply it still flourishes in some secluded spot. At length it is found in Japan; and I had the satisfaction of making the identification. One other relative is also shown in Japan; and another has just been detected in Thibet. Whether the Japanese and the Alleghanian plants are exactly the same or not, it needs complete specimens of the two to settle. So far as we know, they are just alike. And even if some difference came to be known between them, it would not appreciably alter the question as to how such a result came to pass.

To be Continued.

FLOWER DECORATIONS IN WINTER.

BY WALTER ELDER, PHILADELPHIA.

The laudable fashion of our wealthy citizens in illumining their festive and joyous entertainments with cut-flowers and ornamental pot plants has become general. Many of our leading individual florists in Philadelphia, New York and Boston, employ each twenty thousand square feet of glass houses for their production during winter, and other cities produce their due shares.

They have attained a high degree of perfection in their culture and in arranging the cut-flowers in various beautiful designs of different sizes to suit circumstances. Frequently they are enclosed in vases and transported seven hundred miles in twenty-four hours by our express companies upon our railroads, and arrive as fresh as if just cut from the plants. Hand bouquets are made more lovely by the very ingeniously cut paper covering their handles. There are also made floral temples and table designs and baskets; anchors, crosses, crowns, hearts, harps, lyres, pyramids, stars, shields, wreaths, &c. Artificial groves are composed of pot plants, some with pretty and others with sweet flowers; some with ornamental foliage of wonderful variegations, and others of singular habits. There may be Euphorbias, Ephiphyllums and Poinsettia, &c., in bloom in midwinter; Acacias, Azaleas, Camellias, and orange and lemon trees in bloom in early spring. Then Olea fragrans, Daphne odora, and Heliotropiums, of the sweet smelling class. The stately Metrosideros with its scarlet, bottle brush formed flowers; the epiphytal Orchids, of curious habits; the ingeniously wrought rustic stands and hanging baskets full of singular plants growing in them. The combinations are delightful in the extreme, and impart a variety to the assemblage which makes all feel as if "it were good to be there." At private home parties, tables and sideboards look elegant with their floral ornaments; on all festal occasions rooms are made gay with decorations of foliage and blossoms; and what would wedding days be without flowers? Churches, on all occasions, look more sacred for their floral and leafy embellishments; the melancholly gloom of death, and the solemnity of the funeral, are lightened by the tributes of flora.

Grand public banquets and balls are made magnificently lustrous by floral designs and living groves of pot plants, making gardens of fragrance and splendor in the dark nights of winter; hosts and guests all feel inspired with fresh animation. What we should be in this year of the nineteenth century without flowers, who could tell?

EUCHARIS AMAZONICA.

BY MR. DAVID M. BALCH, SALEM, MASS.

Eucharis Amazonica with me has a flower spike twenty-five and one-half inches high, with *nine* flowers. Plant is in a sixteen inch tub, bears eleven flower spikes with six and seven flowers each, except strongest, which has nine, as stated above, about 73 flowers in all.

Has been pushed along rapidly all summer, and now in vigorous leaf growth. Required no check whatever to induce flowering, but bulbs got so strong they were obliged to flower.

Flowers are very large and fine and spikes unusually tall.

These results seem so excellent that I hasten to inform one of my principal horticultural instructors thereof, and would send him the remarkable flower spike for inspection if I thought there was a possibility of anything but the debris reaching him.

I may be in error (if so, your superior information in such matters must set me right), but I think it is extremely rare for Eucharis to produce more than seven flowers to a spike, it usually has six, often five. When the plant was first introduced to cultivation it was stated to produce three or four flowers on a spike about a foot high. I have read accounts of wonderfully large specimens grown in England, but the number of flowers to a spike has not been stated. If in the exchanges or publications at your disposal you happen to have come across any remarkable results in the cultivation of this fine plant, please note a few in the *Gardeners' Monthly*, as standards of excellence for us to emulate.

EDITORIAL.

THE ADVANTAGES AND DISADVANTAGES OF HOT WATER HEATING.

A correspondent asks our advice in the following note, and, as we think it is a question of more than ordinary interest, we give it a prominent place. He says:

"I have two plant houses, each 50 feet long by sixteen feet wide, which, when I took charge of the place, were heated by brick flues, with two furnaces—one to each house. Knowing from experience in England how much better hot water is for heating purposes then hot air, in the moist atmosphere it seems to give out, and the better way plants grow in it, I persuaded my employer to have hot water put in the place of the other. It was rather expensive, to be sure, but I hoped by having only one fire to save in this way, instead of the two fires as before. I left the old flues standing. The fireplace had to be altered a little to suit the boiler, but in every thing else the circumstances were the same. But when we tried to put the apparatus in operation the flues did not seem to draw well. Before we put the boiler in, the flues were warm to the end of the house, but now there was hardly any warmth twenty feet from the boiler. The boiler maker was sent for, and he said the flues were too long. We cut them off entirely and made another upright from the furnace, and independent of any attempt to warm the house with them. It then drew splendid, and the boiler worked well; but there is an immense amount of heat lost out of the top of the chimney, and I cannot understand why this cannot be made in some way to go into the house, but the boiler man insists this heat must be lost or his machine wont work.

"But the great trouble with me is to keep up the heat The house gets warm very soon after the fire is lighted sooner than when we had the flues, but we have to keep the fire always clear and bright, or the temperature soon goes down. When we had the flues, I used to start on a cold day, the fires about noon, and then about seven or eight o'clock bank up the fires with wet ashes, and the houses would keep comfortably warm till morning, but when we stop the draught under the hot water, it seems to cool and the circulation stops; hence we have to keep a bright fire burning all the time, or the houses have the frost in before morning. The last winter was a very cold one, and for fear of some misfortune, we engaged one of the men, at the regular day wages, to sit up and tend the fires all night. The coal bill, too, was for forty tons of coal, while I believe about ten was the quantity under the furnace plan. Instead of saving in the cost of two fires, as I supposed, it has certainly cost more, while the extra hand employed at night annoys me very much. It was not so with my hot water boilers in England. Can you tell me where I am wrong, or what I had best do?"

Our correspondent has not taken into consideration the great affinity, so to speak, of water for heat. A cubic foot of water will absorb enough heat to warm a small greenhouse. In the case of his first experience with the boiler, after the water had taken from the coals a large portion of the heat, there was none left to heat the flue with. Heat, by rarifying the atmosphere, creates draught, and if there was no heat in the flue there could be no draught. It was, therefore, essential at the very outset that much more fuel should be used to heat the water and the flue, than the flue alone.

How this principle works, any one may see in a room heated by a common cooking range. Let the fire carry the temperature up to say 60°, and then place on a common wash boiler of water, the temperature of the room falls 10°, and it continues thus until the water boils, when, peradventure, the steam wandering throughout the room, will raise it to the original degree.

And then, in regard to circulation, our correspondent's own experience shows how necessary it is to have a bright fire to keep up the circula

tion. The keeping up of a temperature by hot water depends on an active circulation, and this requires an active fire. We do not see what our correspondent can do to help himself but to return to his flues, which, by his own showing, appear to have worked pretty well.

The *Gardeners' Monthly* has never advocated hot water for small greenhouses. After they reach 50 feet in length then hot water becomes valuable; and where a large range of glass exists, hot water is in most cases the perfection of heating. Then, instead of a dozen fires, requiring a dozen divisions of the fireman's attention, the whole thing is done in one fire-hole at one time. It is quite possible that in these cases there may be a saving of coal as well as a saving of labor and expensive stoke-holes and furnaces; but of this we have never had any positive evidences. But wherever but one or two small greenhouses comprise all one's glass department, there is no economy whatever in hot water. It is heavier in its first cost, and costlier in its maintenance. Hot water is the rule for large houses or large establishments; hot air for small ones.

CO-OPERATIVE PARKS.

In connection with recent experience in Europe and America, we expressed our opinion a few months ago that neither at private hands nor from public bodies, did we expect more than exceptional specimens of high art in landscape gardening. The American man—the average man—will regard his pleasures as well as his business, from a monetary point of view. And the American people, adopting the vicious principle that politics is a battle for power, and that "to the victor belongs the spoils,"—must have "rotation in office,"—and landscape gardening, being essentially a thing of years, and not of days, cannot exist to any great extent under these accidental or quadrennial terms.

But there are thousands of persons in our community who perceive these things as clearly as we do, and who delight in high art in gardening none the less for our social difficulties in the prosecution of the taste. All our public librarians tell us that the number of landless dwellers in cities and large towns who take out works on gardening and landscape arts, is truly astonishing; and the publishers of horticultural magazines can tell a similar strange story as to the large list of people who, without either garden or farm, are yet to be counted among the most zealous of their subscribers. These people would be the most enthusiastic in behalf of our beautiful art, if they could practice the taste without endangering their little real estate speculations, or spending more money on it than their means will permit. For this large class, the plan of co-operative parks and gardens affords golden opportunities; and we presume nothing has prevented an extensive application of the principle but the lack of moneyed men of sufficient perception to understand this innate love of citizens for garden art; or, if perceived with sufficient judgment, to employ the proper person to design and oversee the work.

Philadelphia has been fortunate, of late years, in having, on the management of her three leading railroad lines—the Pennsylvania, the Reading, and the Philadelphia, Wilmington and Baltimore—men of high scientific and refined artistic tastes, conjoined with eminent business capacity. These men understand as it seems never to have been understood before, how much can be done in landscape gardening for this large and increasing class in the community; and are laying out, in various directions about the city, beautiful tracts in the highest style of art, and selling the lots in connection with these beauty spots in such a discriminating way that even the man with an income of but a thousand dollars a year, may have not only a home in the country, but such a home surrounded by the treasures of nature and art, which, but a very few years ago, it would have been presumptuous for any one but who might be on the millionaire's path, to aspire to.

Among the movers in these enterprizes, the Philadelphia, Wilmington and Baltimore Company is occupying a front rank. The original idea of a railroad was to connect two separate communities, and this line especially acted so strictly under this construction, that the road led through the cheapest ground, without regard to any other consideration. Beautiful sites were, of course, ignored; and the road was run through a level, marshy tract, which, if it were not for an occasional glimpse of the beautiful Delaware, might serve to discipline a sinner who rode over it, as thoroughly as a hair shirt would have done an ancient anchorite.

To remedy this the present board have changed the whole track, taking it through the high ridge which runs parallel with the Delaware a mile or two from its bank from Philadelphia to Chester; and laid off, at convenient distances,

park towns along its line. The road being just finished, an opening trip was recently afforded to the editors of the leading Philadelphia papers, and a stoppage of some time at the chief park, Ridley, gave us an opportunity of noting some of its leading features. The plot occupies six hundred acres, and is diversified by a continuous succession of hill and dale, through which numerous creeks and water courses meandered to the Delaware, which was, at this point, about three miles away, and at this time bore on its bosom numerous vessels, bound for the city, six miles above. The company has been extremely fortunate in securing the services of Robert Morris Copeland as landscape gardener and chief engineer; who, as the author of "Country Homes," is well-known and esteemed by most of our readers. Mr. Copeland has taken advantage of these valley streams to make large and beautiful lakes at points where their margins form outlines of great beauty, without any other labor than throwing a dam across the foot of the projected lake. These dams are arranged as waterfalls—not as we often see mere mockeries of natural ones—but waterfalls as natural and beautiful as any wild nature boasts of. These lakes and falls are to serve other purposes besides boating, fishing and attractive beauty. They will be the water reservoirs of the projected town.

It is but one year since the undertaking was commenced, and the chief work has, of course, been road making. These roads are some of them straight, some curved, just as the peculiarities of the surface or landscape effect required. In various parts of the tract small portions of from one to several acres are set apart for the public parks or gardens; and these, with the roads, belong to the whole people of the settlement, in common. In order to maintain these public portions in the highest conditions of landscape gardening art, one-fifth of all the purchase money is set apart as a fund to be held in trust by the railroad company perpetually, the interest of which is to be used for the purpose. The lots are of all sizes and prices, from $200 to $2,000, while the railroad company conveys to and fro passengers and material for a considerable period to all who build. It is easy to see how such projects as these must succeed. They are born of the necessities of the times. To all intelligent people it is no mere poetic fiction, that God made the country and man made the town. The only wonder is that it has not been reduced to practical prose long before this.

The company prepared an elegant entertainment for their guests, at the conclusion of which Mr. Copeland addressed the gentlemen present, giving a full history of the projection of the enterprize, and its bearings on the wants of modern society. In addition to his abilities as a landscape artist, Mr. Copeland is an accomplished orator, and his address was attentively listened to and frequently applauded.

Messrs. Wells, of the *Evening Bulletin*, McIlhenny, of the *Age*, McKean, of the *Public Ledger*, and Meehan, of the *Gardeners' Monthly*, were called on by Vice-President Felton; and after brief addresses from these and several other gentlemen, the party returned to Philadelphia, all, we believe, well satisfied that the idea of co-operative parks was destined to solve the great problem of how the American people may live near to business and yet in the midst of the highest efforts of garden art, without being borne down by the weight of private expenses or public taxation.

EDITORIAL NOTES.

DOMESTIC.

Mapes' Theory of Progression in Mineral Manures.—The late Prof. Mapes had an idea that plants used the mineral elements of the soil more freely and to better advantage after they had already been a part of an organic body then when taken directly from the soil. This generalization was never the result of such careful experiment with him as to be put in the shape desired by men of science; but yet there were many presumptions in its favor. We are led to these remarks by an article in the *Rural Alabamian*, in which the writer recommends the Canada thistle as being a much better plant for ploughing under in green manuring than the clover. The clover takes up mineral elements which other plants cannot, but which they can feed on after the clover has done with them. Now, in regard to the Canada thistle, there is little doubt that the correspondent's opinion of it is correct. It is better than clover, but the prejudice against it is so great that no one would want to introduce it, no matter how valuable a "progressive" so ever it might be; but the idea suggests itself that there may be many much more valuable plants than clover which could be introduced for green manuring purposes, and there is here an open field for profitable experiment.

In regard to mineral potash, which so many feldspathic soils contain, it is well known that very few plants will grow and take it up well. They are amongst the poorest of soils. Yet stable manure added to them tell better on the crops than the same amount of vegetable matter would on soil which had not this native potash in it. This point is rather an argument against the *scientific* value of Prof. Mapes' idea, because the dead vegetable seems to act on the preparation of the element for other plant food as living matter would; but still the necessity of an intermediate, which is the point of practical value in Mr. Mapes' idea, remains.

There are, however, many plants which can make admirable use of the elements in these rocks, and thus prepare them for other crops. On these barren felspar soils the common mullein grows to an enormous size. Even on the refuse of rock from an old quarry, we have seen it with leaves two and a half feet long and eight inches wide, with flower stems three inches thick and four to five feet in height. In such soils as this there could be no better plant for green manuring; on this, indeed, clover would not do at all. It is thus seen that the whole subject of the best plant for this purpose is open to an interesting investigation.

New Varieties of Plants.—Mr. Buckley says, in the *Rural Alabamian*, that in the South a new form of the Bride of China, the *Melia azederack*, has appeared, which has all the "characteristics of a distinct species," and he proposes to name it as such *Melia umbrella*. He does not say what these specific characters are, but that any one can "distinguish it even in winter;" but this is no more than one can do with the weeping ash, the upright English oak and many other things. We suspect these "species" will not be accepted by naturalists; if they be, men born with six fingers or six toes will be as worthy of the honor of specific names as distinct from the great human species, as these plants are. We like Darwinism a little, but think here even Mr. Darwin himself would cry for moderation.

The Laws which Govern the Production of the Sexes.—The *Popular Science Monthly* has the following notice from a correspondent at the Dubuque meeting of the *American Association for the Advancement of Science:*

THE FEMALE THE BETTER HALF.

If there were able debaters among the members of the Association present, opportunity has certainly not been wanting in which to develop their ability. Think, for instance, of what a magnificent subject for discussion was offered by Prof. Hartshorne, of Pennsylvania, in a paper on the relation between organic vigor and sex, in which he espoused the theory that the births of females were an indication of excess of formative force, and of males of a deficiency, on the part of the parents; and that female offspring was an index of the highest vigor. He began by alluding to certain papers which Prof. Meehan, a botanist of celebrity, had submitted to the Association, wherein it was set forth that the highest types of vegetation among the larch and coniferous trees were of female kind. He specifies that the larch, while in its highest luxuriance, and during many years, produces only female flowers; but in its decline it at length produces male flowers, and it shortly afterward dies. Prof. Hartshorne extended this theory to animal life, and undertook to show that, whenever or wherever there was excess of formative power, its tendency was to the production of female offspring. He illustrated his belief by the development of bees, the birth of the queen-bee being the highest, of the drone the lowest result, and preceded by respectively high and low circumstances of nutrition.

Sometimes a working bee—which, being an imperfect female, is of course incapable of impregnation—will give birth to parthenogenetic offspring. Such offspring is always male. The eggs of the queen-bee that hatch males have not been fertilized; and, should she never have been impregnated and lay eggs, they will hatch only drones. In respect to the aphides (plant-lice), it is noticeable that, while their food is sufficient and of nutritious quality, their offspring is exclusively females, propagated parthenogenetically; but soon after the supply of food, owing to a change of season or circumstances, is diminished, young male aphides appear. Among the higher order of animals Prof. Hartshorne found an argument in the sex of double monsters. Stating that the birth of double monsters was due to fissure of the ovum and excess of formative power, he asserted that it is well-known that in the majority of instances these monsters were of the female sex. He brought forward the vital statistics of different nations and their varying proportion of male and female births in support of his position, attributing the differences to increasing or diminishing vitality; and even the continually lessening reproductive powers of American women formed one of the illustrations of this theory.

Now that this new law of nature bids fair to be accepted by most scientific men, it is but justice that history should record the names of others besides the editor of this magazine, who have had a share in developing it.

Mr. Meehan, who, by the way, has not the honor of owning any title as given in the quo-

tation above, after the derivation of the Heath-leaved and "Tom Thumb" arbor vitæs from the *Thuja occidentalis*, and the Heath-leaved Retinisporas from the flat "frondose" forms had been proved beyond a doubt, was led to see how much the power or intensity of vitality had to do in modifying the form and nature of the foliar organs. These observations were embodied in a paper read before the American Association at Chicago in 1868. From this it was easy to flow into the channel of the sexual laws of plants, as the parts of the flowers which characterize the sexes are but modified leaves, and a similar law might be anticipated.

In July of the following year the position that the varying conditions of vitality governed the production of the sexes, was illustrated in a short address before the Philadelphia Academy of Natural Sciences by numerous specimens of plants, and further eleborated in a paper read before the American Association at Salem, in August following. But in June of this year Dr. David Moore, of Glasnevin, read a paper before the Royal Irish Association on *Nepenthus*, in which he pointed out that the same law existed in these plants, as Mr. Meehan had in so many others. It is remarkable that the same conclusion should be reached by two observers so far away, at the same time and without any correspondence with the other in any way. At Troy in 1870 another paper was presented, showing that this varying vitality, which resulted in separate sexes, was owing to varying phases of nutrition while the parts were in their embryonic state. Professor Gill, at this meeting, as did Prof. Agassiz at the previous one, insisted that however true it might be in the vegetable world, embryology showed the impossibility of its soundness when applied to the animal. But Dr. Butler, in the *Medical and Surgical Reporter* of the following November, showed from the anatomy of the human system that the law must be as operative in the animal as in the vegetable organism. The following year Mr. Meehan being asked by the editor of *Lippincott's Magazine* to prepare a paper for that serial, one was written on this subject, taking in its application to the animal as well as to the vegetable division of the subject; but after it was written, a note from Mr. Lippincott informed the writer that "when he asked for an article," he supposed a subject would be selected that the writer knew something about; and it was, therefore, offered to and accepted by the editor of "Old and New," in which magazine it appeared in February of 1871.

We have given, at some length, this little bit of history, as we are anxious that Dr. Butler, of Philadelphia, and Dr. Moore, of Glasnevin, should receive, as well as Mr. Meehan, their deserved share in the discovery of this law, should it prove to be, as it promises now, generally accepted as sound.

The Postal Law Outrage.—We note that the correspondents of some of our Western exchanges are not disposed to be as charitable as we were in offering the suggestion that the law was not changed in the interest of the express companies. They insist that it must be this and nothing else. It is scarcely credible that Postmaster General Cresswell and Congress would lend themselves to a direct bargain with express companies against the whole public interests,—especially in favor of a class which is in such bad odor with agriculturists and horticulturists as the express companies generally are. We prefer to believe it was one of those stupidities of legislation, which is sometimes enacted without due consideration.

Longevity of Ivy.—The English are fond of referring to the great longevity of the oak, but we question whether their Ivy will not equal it. In this country the English oak, judging by the specimens in the old Bartram garden, will not last much beyond a hundred years, but the Ivy shows no sign of any decay. One of our most beautiful gardens, "The Grange," the country seat of Jno. Ashurst, Esq., is famous for its beautiful specimens of Ivy. The first plants were brought in a carriage from Judge Peter's celebrated place at Belmont, by Mrs. Eyre, 50 years ago, and look now as if they would flourish for centuries yet.

Vicinity of Pike's Peak.—Civilization is wending its way West with astonishing rapidity. A year or two ago scarcely a sound could be heard but the babbling of the mountain torrents and their echoes from the majestic rocks, in all the wide region about this wonderful place. Now, as we learn from a recent letter of Mr. Williams to the New York *Independent*, there are hotels, dwellings and people by the thousand, with all the additions which humanity brings with them. 7000 trees planted and 11,000 letters a month, is not bad for so young a child. What will the adult do?

SCRAPS AND QUERIES.

PLANTS IN BLOOM at Rhosynmynydd, the suburban residence of J. P. Jones, Esq., Blockley, West Philadelphia, Pa.

SEPTEMBER.

HARDY HERBACEOUS PLANTS.

Achillea	ptarmica, fl. pl, Yarrow
	simplex
Anemone	Japonica, Wind-flower
	alba (Honorine Jobert)
Aster	Novæ Angliæ, Star-wort
Centaurea	cyanus, Blue Bottle
	Americana
Colchicum	alba, Autumn Crocus
	variegatum
Coreopsis	lanceolata, Tickseed sunflower
Corydalis	glauca
Dianthus	plumarius, pink
	caryophyllus, carnation
Eupatorium	album, White Mist
	serotinum, Blue Mist
Erysimum	Peroffskianum
Funkia	japonica alba, Day Lily
Gentiana	Andrewsii, Closed Gentian
	crinita, Fringed Gentian
Hieracium	aurantiacum, Hawkweed
Lilium	lancifolium album, Lily (Japan)
	roseum
Lychnis	dioica fl. albo pl.
Passiflora	incarnata, Passion flower
Polygonum	japonicum album, Periscaria
Phlox	glaberrima, Lychnidea
	paniculata alba
	pyramidalis
Plumbago	Larpentæ, Lead wort
Sedum	japonicum, Stonecrop
	variegatum
Solidago	altissima, Golden Rod
Uniola	paniculata, Seaside Oat

BEDDING PLANTS.

Abutilon	album, Chinese Bell
	striatum
	vexilarium
Agapanthus	umbellatus, African Lily
Aloysia	citriodora, Lemon trifolium
Amaryllis	Belladona, Belladona Lily
	purpurea
Asclepias	curassavica, Swallow-wort
Bouvardia	triphylla
Celosia	cristata, Cockscomb
Cuphea	Danielsiana, Cigar flower
	platycentra
Erythrina	crista galli, Coral tree
Fuchsia	coccinea, Ladies eardrop
Geranium	Zonale, Crane's bill
Gladiolus	gandavensis, Sword Lily
Habrothamnus	elegans
Heliotropium	Peruvianum, Heliotrope
Lantana	alba nana
Maurandia	alba
	Barclayana
Pentas	carnea
Plumbago	Capensis, Lead-wort
Ruellia	formosa
Salvia	coccinea, Sage
	involucrata
	rosea
	splendens
Verbena	chæmadrifolia
Viola	tricolor, Pansy

DECIDUOUS SHRUBS.

Bignonia	grandiflora, Trumpet flower
Ceanothus	Americanus, New Jersey Tea
Clematis	crispa, Virgin's Bower
	vitalba, Traveler's Joy
Hibiscus	Syriacus rosea pleno, Rose of
	purpurea pleno, [Sharon]
Humulus	lupulus, Hop
Hydrangea	hortensis
	Japonica variegata
	Otaksa
	paniculata grandiflora
Lonicera	Belgica, Honeysuckle
	Halleana
	flexuosa
	sempervirens
Sophora	Japonica pendula
Spiræa	Douglassii
	Fortunei rosea
	alba

EVERGREEN SHRUBS.

Elegans	hortensis, Oleaster
Hedera	Helix, Ivy

Eleagnus hortensis, a broad-leaved evergreen, as hardy as the English Holly in this locality; it with the variegated variety stood unhurt last winter.

OUR POSTAGE LAWS.—The wisacre who "got up our recent postage laws in place of the old ones, deserves to have a place in immortality beside the youth "who fired the Ephesian dome" in order to make himself more famous than the

"pious fool," as Shakespear's friend says, "who raised it." In our last we called the attention to the practical abolition of the privilege of sending trees and seeds by mail, through the limitation of a single parcel to twelve ounces. Now we would call attention to another absurdity in the charge of double rates for any fraction of half an ounce over that paid by the sender. Thus if a person sends a letter which he supposes weighs half an ounce, but which happens to be a trifle over, the person who *receives* the letter is fined six cents. The object is said to be to prevent people sending over weight letters, but generally the receivers do not like to appear "small," and pay the little bills themselves, amounting in the case of many people of heavy correspondence to from twenty-five to fifty cents a day. It is difficult to see the justice of making the receiver of a letter pay double for his correspondent's oversight; and as to operating as a preventative of sending over-weight letters, it takes considerable of a postal reform prophet to forsee how this is to accomplish it. If they were "returned to the writer" for more postage, there would be some common sense about it.

HOTHOUSE BUILDING.—A correspondent recently inquired for some one to furnish plans and estimates for horticultural buildings. In our last number will be found an advertisement from Mr. Ottaway, who has had much experience in these things.

THANKS.—Our best thanks are due to our good friends of the *American Agriculturist* and the *Horticulturist* for notices complimentary both to the *Gardener's Monthly* and its editor personally. Though endeavoring not to be swerved in our duty to horticulture as we understand it by either praise or blame, it is always gratifying to feel that we have the good will of our intelligent cotemporaries.

EARLY PEACHES.—A central Alabama correspondent writes: "Have you any further information about the Plowden? If it is not Hale's is it earlier or superior? The Rivers' Peaches that were fruited here do not promise to equal the anticipations excited by Mr. Rivers' very flattering descriptions. Is Early Beatrice earlier than Hale's? Have we any peaches earlier than Early Tillottson? Hale's Early is as often two or three days after, as two or three days before the Early Tillottson."

We were promised last year, by those who have fruiting trees of Plowden, specimens and other facts bearing on the matter. We have received none, and we infer from this that it is not up to expectations.

We were not especially promised any further facts in regard to the two Rivers' peaches, but some of the parties who have these visited our office last year, and know that we should be glad to receive any facts about them, but from these neither have we heard this year. We have had to gather our facts from outside sources, and the result is that we believe the Plowden is a distinct variety, and that it *sometimes* matures a trifle earlier than the others.

There is, however, a matter connected with early peaches, which we think the correspondents of the *Gardener's Monthly* have been little by little demonstrating the few past years, namely, that precocity is in many cases but an attribute of impaired vitality. This weakened vitality is often not apparent to cultivators. That excellent observer, W. C. Flagg, of Ills., showed some years ago, that the glandless peaches were more liable to rot than others,—yet there is nothing in the appearance of a glandless peach to indicate that its vitality is not as great as the glandular varieties. Confirming these observations of Mr. Flagg's, the editor of this journal showed by a different series of observations, that the absence of glands was a type of weakness.

The rotting of Hale's Early the past few years is another strong proof of the correctness of all these deductions. Here is the earliest of all this class of peaches, more subject to the rot than any other,—its low stage of vitality thus apparent, though there is nothing like disease to be seen in the tree itself. We see also that the degree of earliness varies—and this no doubt owing to impaired vitality,—for any variety though generally feeble, will have individual trees, in local places, varying in the degrees of vitality.

The lesson of all this is that we should be extremely cautious of lending much faith to extra early peaches, or extra early anything else. They will not likely prove reliable, even as to their earliness, while if they do come any where near to anticipation in this respect, it is quite likely to be at the expense of vitality, and thus bring with their earliness some trouble we had rather be free from.

PAPER FIBRE, SPOROBALUS CRYPTANDRUS.—*H. O. B., Painesville, O.*, writes: "In *Gar-*

dener's Monthly for October, page 311, you quote rom Mr. Saunders an article on the 'Esparto grass' as a material for paper making, in which he also speaks of Spartina cynosuroides Wild, as available for the same purpose. This species of Spartina grows here in our lake and river marshes. It has at its base a profusion of long hard fibrous leaves.

There is here another native American grass, Sporobolus cryptandrus Gray, which seems to me not unlikely to prove a valuable material for paper. I enclose a sample of the fibre of the leaves, separated from the pulp by the action of the rains, winds and frosts. I have the nest of a red-winged blackbird made of this fibre, and lined with the down of thistles, which is an exquisite thing. The fibre, you will see, is strong. I think it is confined to the sheaths and leaves. It (the grass) grows here in sand, and I am not sure it would succeed in cultivation. If you have a herbarium, and have no specimens of Sporobolus, I will send you one, and will try to secure some seed.

As this grass grows spontaneously in dry sand, it will probably resist any moderate degree of heat and drought.

[The fibre was equal in strength to hemp. We have submitted it to a paper maker for his opinion.]

A PEAR FRUIT FROM AN APPLE TREE.—*W. N. B., Nashville, Tenn.*, send us the following extract with remarks appended:

It is a very easy thing to make an apple grow on a pear branch, or to produce pears on a branch of an apple tree. The *Journal of Commerce* states as a "freak of nature" that Mr. Ellwood Walter, President of the Mercantile Mutual Marine Insurance Company, of this City, has in his possession a section of the branch of an apple tree, having on it an apple and two pears. The fruit is fully developed, of natural growth, and grew on Mr. Walter's farm, near Englewood, N. J., who states that many years ago, when the apple tree was planted, a pear tree was planted in close proximity to it, and both have grown up. Yet the branches are not interlocked, and no grafting has been done. The trees are so close that their branches touch each other when swayed by the wind. The fruit grew on the extreme end of the branch and the apple is on the stem between the separate stems of the two pears. These are not apples resembling pears, but are unmistakable pears. There was another pear in the group, which was plucked and tasted. The specimen, with the apple leaves attached, has been preserved in a solution of glycerine and alcohol.

What do you think of this apple and pear, is it an accidental hybrid or what? What a pity the gentleman had not have planted the seed instead of thus preserving or rather destroying them. Please notice in *Gardener's Monthly*.

I desire to thank you for giving us such a noble *Monthly*, and was greatly pleased at the compliments to the *Monthly* in October *Agriculturist*.

[The newspaper extracting from the *Journal of Commerce*, hints that the commingling of fruit on one branch resulted from grafting, but not necessarily so. When the apple or pear tree is entirely separate it is too easily affected by its own pollen to be influenced by the pollen of another tree; but when they are intermingled so closely as these were, it is very easy for pear pollen to reach the apple blossom before its own pollen; and that in such cases the nature of the apple fruit will be commingled with that of a pear has been proved by the case of Dr. Lawrence's Canadian pear, before noticed in this magazine.]

THE WINTER AT PRINCETON, N. J.—A correspondent says: Last was a terrible winter here for evergreens, though I have come out much better than any one else in the neighborhood. Thanks to my White Pine belts on the north and west; for instance, in all directions Picea pectinata is either entirely killed or badly injured, while not a leaf of mine is hurt. Singularly, all my Junipers, creeping, Irish, Swedish, &c., are browned, with the exception of I. oblonga pendula, which, though equally exposed, is entirely untouched. Picea pichta, Nordmaniana, Apollinis, Cephalonica, nobilis, amabilis and pectinata, entirely uninjured. Pinus sylvestris, all right, of course, but its var. nana, though in a sheltered place, completely killed. Pinus excelsa, uninjured; Abies Smithiana, all right; Tsuga Williamsoni, safe, but T. Douglasii badly hurt, 3 feet of the top cut down. Retinospora obtusa and pisifera untouched; plumosa var. aurea, badly hurt; R. filifera, hardy. Thuja occident, var. Sibirica, completely killed where exposed to the north wind. Biota orientalis, *very* slightly injured; var. aurea do., Cephalotaxus Fortunei, completely killed; C. drupacea, entirely uninjured. All small trees of Libocedrus decurrens killed by the ground; large ones, not a leaflet hurt. The same remark applies to Cupressus Nutkaensis. C. Lawsoniana unhurt, but its vars., argentea, gracilis and stricta, entirely killed. Thujop dolabrata, some specimens killed; others by the side of them unharmed, also with regard to var. variegata. Cryptomeria Japonica, the largest tree in a rather sheltered

situation, killed; a smaller one not so well protected, uninjured. Cedrus Libani, uninjured. Singularly, Magnolia glauca and tripetala are uninjured, while the hybrid Thompsoniana is killed; M. purpurea is killed to the roots in nearly every specimen; M. conspicua and 'Lenne' both all right, as is also M. macrophylla, Cercis Japonica, badly injured. Kilmarnock Willow killed.

On the whole I came out pretty well."

MALE ASPARAGUS.—*L. S. A*, *Louisville, Ky.*, writes: "I have been especially interested in the discovery announced by your magazine in regard to the distinction of the two sexes in separate plants of asparagus. Of course it completely knocks the breath out of Conover's Colossal, Lesher's Mammoth and other supposed true varieties. It seems to me that I never knew a mere scientific fact to be discovered which so aptly came in to set at rest a disputed question. Still it would be a good thing if we could find some way to preserve a good variety pure. You show that it cannot be done by seed. Mr. Ravenel, in a recent number, shows that dividing the crowns would be too slow and too expensive a plan. What I desire to know is whether the male plants could not be selected from the female plants, and whether on your theory of sex the female plants would not give a stronger and better growth than the male ones."

[The theory which the editor of this magazine advanced, was that it was a weakened vitality in *those parts of plants* immediately bearing the flowers, which governed the production of male ones. The whole plant is not always weakened when some of its parts are. Again, some plants receive a check to vitality at some periods of their existence and not from the beginning. The male hemp and the male spinach for instance die long before the female plant does, and by so much, shows that its hold on life, by which we mean its vitality, is not as great at that period. But in all the earlier stages of life, so far as one can judge by the appearance of things, the male hemp or spinage is as vigorous (vital?) as the others. Whether, therefore, male asparagus plants would be less vigorous than female plants, is a matter for experiment. It is a question which no discoveries of the editor or any one else, so far as we know, will apply, so as to afford any guide in advance.

BORERS ON EVERGREENS.—*W. H., Louisville, Ky.*, writes as follows: "You would confer a great favor on me by letting me know how to preserve pine trees and other kinds from the borer. I have some beautiful Austrian and other pines in my yard, about twenty in number which are threatened to die out. I think from the borer already one or two are dead, and the balance more or less thickly bored, the turpentine running out from the holes. Small pieces of the wood like sawdust are thrown out by these insects in large quantities from the trees decayed, and unless I can apply some remedy, I am conscious all my pines will die out."

[We do not know of any insect which bores living evergreens. We have seen the borings which our correspondent seems to refer to occur in dead or dying trees. If there be any which attack healthy trees, will some of our correspondents who have had experience kindly respond?]

OUR NEW LAWS.—As the stupidity of some of our new laws becomes evident by their operation, correspondence flows in on us in relation thereto. Here is one who writes that though his postmaster refuses to allow any package to go over twelve ounces, "four pound packages come in from Rochester, evidencing that either there is a disposition to favor some seedmen, or else the Rochester man is ignorant of the law. Which is it?"

We do not know, but if after a study of the *three hundred and twenty-seven* sections of the "law," many of them of the most contradictory character, any postmaster should plead ignorance of the law, we should heartily forgive him. Another says, "I note that you refer to new postal laws. I received from New York this week four packages of seeds, on which one cent for each two ounces had been paid; at my post-office I was told this was only half the proper rate, and I had to pay double the amount unpaid, eighty cents. Will you please tell us what is the law?" As in the above case no one can tell what is the law. In one section it *appears* as if two cents for two ounces *might* apply to seeds, but section 163 says that "on mailable matter of the third class * * postage shall be charged at the rate of *one* cent for each two ounces." We find further by looking through the huge pamphlet that in section 133 "seeds, cuttings, roots, scions, bulbs" (if they do not dare to grow over twelve ounces) are decided to belong to the third class. This would seem di-

rect enough; but still postmasters may elect to act on the two cent section—we cannot answer our correspondent decisively.

And here is another queer inquiry. "At the last session of Congress the duty was taken off tree seeds, but kept on garden seeds. The collector of New York makes me pay duty on an importation of Mahaleb cherry, insisting they are *garden seeds*. What are garden seeds? As you are ventilating the post-office laws, please enlighten us on this one also." We know of a case also like this. If we were to appeal to Webster, or even horticultural or conventional language, we could soon tell our correspondent what garden seeds were, but this will do no good. Our correspondent will have to discover the author of these laws, and get him to tell what he means; no one else can.

CHANGE IN THE POST-OFFICE LAWS.—Just as we go to press, we learn that the member of Congress in the district in which Rochester, New York, is situated, has undertaken to urge a reform in the late retrogade movement. The following is a paper drawn up by Mr. Vick for this purpose,—any one interested in the matter, can forward their names to Mr. Vick with authority to append them to the document:

"For more than twenty years, in accordance with the laws of Congress and the rules of the Post-office Department, Seeds have been carried in the mails in packages of four pounds or less, at a cost of eight cents per pound, or rather two cents for every four ounces or fraction thereof. Under this system of cheap postage for Seeds, an immense trade has grown up, many persons of means and commercial ability having been induced to embark in the enterprise, and now several of our Seed Houses are acknowledged to be greater in extent, and conducted with more skill and system than any similar establishments of Europe.

So important has the transmission of seeds by mail become, that the postage stamps used by several of our leading houses range from ten thousand to fifty thousand dollars each, annually. Every hamlet in the country has been reached and blessed by cheap postage for seeds, and the people have learned to rely upon the mails for the transmission of seeds from distant growers to their homes.

The facilities afforded by the wisdom of Congress for the dissemination of seeds at a low rate of postage, and in packages of a convenient size, has also encouraged the growth of seeds in our country, and we are becoming every year more independent of foreign growers; indeed, we are beginning to send such things to Europe, as experience has proved peculiarly adapted to growth in our climate.

We had supposed that such a state of things was not only satisfactory, but highly gratifying. We knew that the Government was anxious to send seeds all over the country, and imported large quantities annually from Europe through the Agricultural Department, at a great cost, sending them free of postage through the mails, for the purpose of advancing the Agricultural and Horticultural interests of the land. The seedsmen of the country were doing the same work, not only without cost to the Government, but actually paying millions of dollars to the treasury for the privilege, in the way of custom house duties and postage.

We had not the least idea that any change in the law was contemplated We had not learned that it was unsatisfactory to any class or any person, and it was not only with regret, but with great surprise, we learned through the Post-office Department that Congress in amending the Post-office law, at its last session, and ostensibly for the purpose of increasing mail facilities, had really made a retrograde movement. Henceforth no package of seeds could be sent by mail except at letter rates if weighing more than twelve ounces, and that the rates on these small packages were doubled, being increased to one cent an ounce.

The effect of this law is not only to greatly embarrass, but almost to destroy our business. Its effect on the Post-offices is also injurious, because compelled to divide the usual four pound package into six small packages, thus greatly increasing the labor of packing and distribution, and compelling us to send by express whenever possible to do so.

We did not think Congress designed to repeal the old law regarding seeds, but that the new law was merely supplementary to the old one, and we observe that this is the unanimous opinion of the Agricultural and Horticultural press of the country, as well as of the press generally.

We ask you most respectfully, yet earnestly and with entire confidence, to take such action as early as possible at the next session of Congress, as will enable us to send seeds at the rates existing previous to the last acts of Congress on the subject, namely, four pound packages at two cents per four ounces, and thus save us from severe and unexpected embarrassment and loss, and secure to the people the privileges they have long enjoyed and appreciated, without injury to any and with benefit to both Government and people."

NEW AND RARE FRUITS.

THE HAILEY APPLE.—As such a society has not yet been organized or committee chosen, I will appoint the editor of the *Farmer* committee *pro tem* and forward you with this, a small box of apples called the Hailey apple, which originated in the orchard of the late Mr. Peletiah Hailey of Topsham. The tree is very thrifty and hardy, and an abundant yielder of fruit annually. The scions will yield fruit one year after insertion in the limbs of fruit bearing trees and flourish well in old or young trees. I gathered more than half a bushel of this fruit a few days since, from a dozen scions inserted one year ago last spring. I have raised this variety for fifteen years, and speak of the qualities of the tree from experience. There is an apple in our market brought from Massachusetts resembling the Hailey apple in form and size, but the flavor is more tart, and the stem different. I have every variety of choice apples which I could conveniently procure for the past twenty years, and find the Hailey yields the most abundantly of any variety in my orchard. It is a fall apple, and its flavor is the best about the first of October. The quality of the fruit you can judge after testing it. Should you or your friends wish to propagate the variety of the apple, I can furnish you with a hundred scions without expense. There are also several varieties of winter apples, which originated in this vicinity that are worthy of propagation.—M., in *Maine Farmer*.

PARK'S LATE CLING.

"Alton, Ill., *Oct.* 7, 1872.

MR. THOS. MEEHAN, ED. *Gardener's Monthly*, Germantown, Pa.

DEAR SIR: I send you to-day, by express, a small box of 'Parks' Late Peach.' They are not full size; the tree overbore last year and this, and stands in sod in a door-yard; nor have the peaches been thinned. Under the circumstances I think they are fair peaches, being so late, large, fine color and good bearer. It is believed to be valuable, and will be planted in this vicinity for market. The original tree has never failed to bear in the last six years.

Respectfully,

E. A. RIEHL.

[They came in excellent condition, 15th of October, and fully sustain the high character we formed and expressed of them last year.]

PEACH FROM J. HEYSER, CHAMBERSBURG, PA.—This is a beautiful yellow cling, in general character between Smith's Newington and Lemon Cling. The fruit is large, though not of the largest size, of a very deep yellow, almost covered with red; rather ovate, with a very small point, and only lines in the place of sutures. The flesh is clear yellow to the deep red stone. The flavor of the specimens before us was not equal to either of the two we have compared with. But as the three varied, it is likely they do not fairly represent the general character, which we have heard from others is first-rate. It is a very beautiful fruit; tested here last of August.

MATILDA STRAWBERRY—In the June number of your paper you speak unfavorably of the Matilda Strawberry, which originated with O. J. Tillson, of Highland, N. Y. You also quote A. S. Fuller as saying that "it is splendid in every respect except quality." Having visited Mr. Tillson's grounds when the fruit was in perfection, I had a good opportunity to examine them, and differ with Mr. Fuller and yourself as to quality. To my taste they are of the class very good or the best, and compare very favorably with the newer varieties, such as Seth Boyden, President Wilder, Chas Downing, etc., and being large, productive, good color and quite firm, they promise well at least. At my request Mr. Tillson has furnished me with a statement of prices as compared with the Wilson, and taken from the commission merchants' bill in New York, which please insert;

	Matilda. per qt.	Wilson. per qt.
June 8,	45 cts	24 cts.
" 10,	36 "	22 "
" 14,	21 "	16 "
" 15,	15 "	10 "
" 17,	27 "	20 "
" 20,	27 "	18 "
" 21,	24 "	18 "
" 22,	24 "	16 "
" 23,	24 "	15 "
" 24,	24 "	18 "
" 27,	30 "	18 "

You will see by this statement they average a little more than one-third more per quart than Wilson.—CHAS. DOWNING, in *Horticulturist*.

STANLEY'S LATE PEACH.—A. L. Dyckman, of South Haven, has sent to Grand Rapids some specimens of the Stanley late peach, and speaks of it in the *Times* as being known under the names of Hall's Chili, Jenny Lind, Sugar, and other names. It is described as the best and most profitable late peach now grown on the Lake Shore. It is a prodigious bearer, yielding annual crops, hardy, vigorous, and is recommended for cultivation in Michigan where it will ripen. This peach, like the Barnard, reproduces itself very closely from the pit, and hence the number of synonyms.

ALEXANDER PEACH.—We note in several Western papers that a peach, introduced by Messrs. Jabez Capps & Sons, is attracting attention. Some were sent to Mr. Purdy, of the *Fruit Recorder*, who thus writes of them:

"These peaches were received in good condition—the Hale's Early but little more than half matured, the Alexander's Early in the perfection of ripeness. It was of good size, agreeable flavor, and of very dark color. The earliness of this peach is no more a marvel than its color which is dissimilar from that of any peach we ever saw before."

BLODGETTS' LATE PEACHES.—We have again some specimens of these admirable fruits, through Mr. Dreer. The late freestone (October 11th,) is particularly well flavored.

THE ATLANTIC AND RICHMOND PEACHES.—Two varieties, originated, or at least being distributed by E. W. Sylvester, are very well spoken of in many quarters entitled to the highest consideration.

DOMESTIC INTELLIGENCE.

AMOUNT AND ORIGIN OF MINERAL MATTER IN PLANTS.—Baudrimont, in the course of an examination into the amount of mineral matter in plants, determined the composition of quite a number of species, and arrived at the following conclusions: First, that mineral matter is found in all plants, even in those of aerial growth, which would scarcely seem likely to have the power of acquiring it; second, that the mineral matter contained in plants occurs in at least two distinct conditions, namely, as a simple solution in the vegetable juices, either not having been yet utilized or unassimilable as the product of dejection, or else as finally united to or fixed with organic matter; third, this latter mode of union may occur in variable proportions, from the smallest quantity indispensable to the production of organic matter to a maximum, where the reciprocal action becomes zero.

The variability of the relative proportion of the organic mineral matter shows that these are not united to each other, as the fundamental chemical elements are united. In place of an intimate combination in definite proportions between the elements of molecules, there is only a simple adhesive union, with the preservation of the fundamental structure of organic products.

Baudrimont was much struck by finding that *Cactus peruvianus* contained 94 per cent. of water and volatile matter, and .04 per cent. of organic matter; and, therefore, that .05 per cent. of organic mineral matter was sufficient to give this plant a definite form, and a texture which enables it to resist atmospheric agencies.—*Report of Department of Agriculture.*

NEW ZEALAND FLAX.—Mr. A. Carr, of Carbondale, Pennsylvania, who for some years resided in New Zealand and gave special attention to the variety of flax cultivated in that island, thinks it could be profitably produced in this country. The dressed fibre commands the present year in the English market £25 per ton, and in New York 9 cents per pound in gold. It can be used as a substitute in all products manufactured from the common variety, as linen, cordage, paper, &c., and is extensively used for stuffing chairs, mattresses, &c., being as suitable and durable for that purpose as horse-hair.—*Ibid.*

EFFECT OF SNOW ON THE TEMPERATURE OF THE SOIL BENEATH IT.—Mr. C. G. Prindle, of Chittenden County, Vermont, has made an experiment designed to ascertain how far soil is protected from cold by snow. For four successive winter days, there being four inches of

snow on a level, he found the average temperature immediately above the snow 13° below zero; immediately beneath, 19° above zero; under a drift two feet deep, 27° above zero.—*Ibid.*

A PROFITABLE PEAR.—The statement of Dr. Sylvester of Lyons, N. Y., is furnished of the product of an orchard of 40 trees of the Louise Bonne of Jersey on one-eighth of an acre, the actual sales from which amounted to $517.90 in four successive years—which he admits is not large, but would give an annual average product of $1035 per acre, or $690 per acre after deducting all expenses.—*Country Gentleman.*

FOREIGN INTELLIGENCE.

WHY DO GRAPES FAIL?—We agree with the epigrammatic remark of Mr. Pearson (page 17) that "a man may miss his way in the cultivation of a new kind of fruit without being exactly a fool." These are circumstances connected with the cultivation of the Vine which even the gardeners do not think of or cannot control, and therefore it becomes every one to speak with some degree of diffidence and modesty in condemning new kinds of Grapes till they have had a fair trial and the greatest skill has been exhausted upon them unsuccessfully.

To the uninitiated it seems very bewildering that at one place Mrs. Pince's Muscat, for instance, is grown in the greatest perfection, while at another place, only a few miles distance, it proves a complete failure, after having tested the best exertions of its owner in its favor; and such is the case. Instances of this, not only in regard to this grape but to many others, may be furnished; but it is rash in those who fail, to condemn in unmeasured terms, as has been too frequently the case lately, those varieties which, from whatever cause, they cannot grow.

It would be well worth while, and much advantage might result from the inquiry, to ascertain where certain kinds of grapes succeed and where they fail; then to set an investigation on foot as to the soils of the districts where they are grown. A great deal has been said about the formation of vine borders; much has been written about them, and some sharp controversies have taken place on the subject. In almost all, if not all, the instructions as to how a vine border is to be made, we are told to "take the top spit of an old pasture." Now, in this top spit of an old pasture resides many a success and many a failure. Have those who so unreservedly advised taking the top spit of an old pasture, ever reflected what that really means, and to what results their advise must unfailingly lead? Let us take a few spits from the surface of old pastures—one from Hampstead Heath and another from Bagshot; one at Oxford another at Cambridge; from the Weald of Sussex, and from the Forest of Exmoor; from a valley in the Cheviots, and from the banks of the Tyne; from Ipswich, from Matlock, and from Aberystwith. Analyse these separately, and we shall find in them substances as various in their mechanical and chemical composition as it is possible for them to be.

Now, while there are varieties of the Vine that will grow more or less successfully in all these kinds of soil, there are others much more capricious, and which require to be studied in this particular if their greatest merits are to be brought out. The *vignerons* of Europe have long ago discovered that to get the greatest good from certain varieties they must be grown on certain soils. The plants that produce the finest growths of Champagne are not grown on the rocky steeps and valley slopes of the Rhine; and those which supplythe vaunted Johannisberg and Rudesheimers are very different from those yielding the Montrachet of Burgundy and the Yquene of the Gironde; while the Carmenet, the Malbec, and the Verdot, to which we are indebted for the famed Margaux, La Rose, and Lafitte, are entirely ignored in Burgundy, where they would fail to yield the equally famed Romanee Conti, Chambertin, and Clos Vaugeot furnished by the little Noirien and Pineau. It is, therefore, evident that to insure success in the cultivation of the Vine, our growers must give more heed to the composition of the soils of which their borders are made; and also to learn the kind of soil in which the different varieties

are found to succeed best. One of the Grapes, respecting which regrets are frequent because it is so difficult to grow, is the Muscat Hamburg, one of the most excellent varieties known in regard of flavor. This has the reputation of being in some places a bad grower, in others a bad setter, and not unfrequently bad to color. A few years ago we sent it with others, then new here, to the south of France, where it is now being largely grown in the vineyards on the schistozo spurs of the Pyrenees, and where neither in point of growth, fertility, color, nor flavor does it leave anything to be desired. There, then, is a proof that the Muscat Hamburgh delights in a soil formed of the rocks of the primary formation. No doubt many other Grapes require special soil and treatment, and it is to attain a knowledge of these that gardeners ought to direct their attention.—*Journal of Horticulture.*

BERBERIS AQUIFOLIUM LEAVES FOR BOUQUETS.—These leaves make the best guard petal for bouquets of any that I know, taking into consideration their appearance and lasting capabilities. Many plants, no doubt, look better at the time, but they soon fade. Rose leaves, when aged or matured, look very well for an edging for bouquets, but I do not think that they equal the Berberis. Various shades of this plant's leaves can often be got, some of them a rich brown hue, when they have been much exposed, and some of a bold green; and others can be had when they are shaded of a finer appearance and texture. Each of these kinds may be used according to the kinds and colors of flowers they are to edge. Besides Camellias the Berberis leaves look well; they are of such a fine glossy color, and their prickly edges furnish an additional feature to the group. The leaves of this plant, which may be had in all seasons, are bold and stiff, and they keep the flowers well together, without being too clumsy.—*R. M.*, in *Gardener's Chronicle.*

FUNGUS AT THE ROOTS.—On the subject of Fungi, I could furnish you with some curious facts that have come under my notice in this country. As an instance of their destructive powers, I may mention their having destroyed a fine wood of young pine trees some 20 years old. They appear to work with wonderful rapidity, as the trees I allude to make in the month of May fine healthy growths, fully two feet in length, and by the middle of June they were brown and withered, as though they had been fire scorched. I indeed at first imagined that they had been burned, till on examination it was found that roots and stems were masses o Fungus. The threads appeared to have run up betwixt the bark and the stem, as the bark came away from the trees in large flakes. Now, had the Fungus been active in spring, when the trees were making their growth, it seems hardly possible they could have grown so freely, and been to all outward appearance in robust health, as indicated by their fine growth; so that the Fungus would appear to be both deadly and rapid in its effects. These Pine trees were sown where they grew, and not transplanted; so that the theory of Mr. Miller, about transplanted trees, in basins of hard, dry earth, would not apply in this instance. It was a case of true Fungus poisoning, brought about, as I think, by squirrels, for at the roots of some trees, near the centre of the wood, we found several hoards of Pine cones and nuts, collected by these animals; and these cones were as fine masses of Fungus spawn as it is possible to imagine, and from these centres of contagion the pest appeared to have spread on all sides.

Another case of Fungus poisoning that caused me a deal of trouble, occurred with some fine old Orange trees in tubs. Some 12 years ago, when these trees came under my notice, they were in a most deplorable condition, all, with one exception, seemed dead or dying, many of them were destitute of foliage, and what few leaves hung on the remainder were yellow and covered with black spots. I at first thought they had been exposed to the frost; but on turning one of them out of the tub, the whole secret of their sickly condition was at once brought to light—it was simply Fungus, the whole ball being a mass of white thread, the young roots all black and dead, and the older roots swollen and turgid. I had not far to look for the cause of the spread of Fungus in this case, as over the drainage at the bottom of the tub I found a layer of Pine tree bark, put there evidently with the intention of preventing the earth being washed down amongst the drainage. As every gardener knows the bark of old pine trees is seldom free from Fungus, and in this instance there cannot be a doubt that the Fungus had spread from the bark into the soil, and on to the roots of the Orange trees, and so caused them injury. As soon as possible I had all the trees replanted in new tubs, removing as much as possible of the

infected soil from the balls, cleaning and washing the roots, and dressing them with quicklime and wood-ashes; it was several years before they recovered from the Fungus fever, but in time they got over it, and are now in good health. At the time of retubbing the trees, we examined amongst the rest the one tree that I previously mentioned as being in better condition than the others. This one tree had been planted without the layer of bark over the drainage, and was free from Fungus. A more convincing proof of Fungus poisoning and its ill effects it would be difficult to find. After this I think even the boldest denier of the noxious influence of Fungus would hesitate ere placing Pine bark under valuable plants. I could bring forward many more instances of these baneful effects, but enough for the present.

The sort of Fungus I have been writing about are called in the expressive Russian vernacular unclean, but here we have many Fungi of a more useful description; indeed, one of the great staples of food in Russia is Mushrooms: they are generally produced in countless numbers, but this season, owing to the dry summer, they have been scarce, and are just now selling at 3s. per lb. I had intended to have said something about their qualities, and the way in which the various sorts are prepared for use, but I fear my gossiping letter has already encroached too much on your space.—Moscow correspondent of the *Gardener's Chronicle*.

HORTICULTURAL NOTICES.

PENNA. HORTICULTURAL SOCIETY.

Much as it was feared the contractors of the improvements on Horticultural Hall would not have the work finished within their promised time, it was gratifying to note, in these days of indifference to promises, that every thing was up to time. The improvements have doubled the capacity of the building, and the adornments are all of the most chaste and beautiful character.

The exhibition opened on the 22d of October. It was too late and in too busy a time to permit of many distant exhibitors, and many near home were also unable to attend.

But with all these drawbacks the meeting was a very successful one, both in the character of the articles exhibited and in the number of visitors in attendance.

This has been pre-eminently a Dahlia year. By this time in most seasons they have succumbed to the frost king. There were many beautiful collections, but chiefly unnamed. The named ones were from Messrs. Robert Buist and Henry A. Dreer. In the collection of the last named, we noted as being among the most distinct and beautiful, Miss Turner, Gladiator, Marquis de Beaumont, Frank Smith, Oillet Parfait, Rover (a free bloomer) and one of the best Gerhard Schmidt's America.

Among the most distinct in Mr. Buist's, were Leah, Rosetta, Bird of Passage, Miss Maison, Midnight, Arrah na Pogue. Mr. Dreer had also a pretty collection of named roses, few, however, being prettier than the old rosy tinted Souvenir d'un Ami. Mellanie de Villernoz, a first-rate forcing rose, was also in this collection. There were numerous yellows in the collection, particularly Belle Lyonaise, Isabella Sprunt, M. Neil, Canari, Jean Pennott, Celine Forestier, La Pactol, Olympie Fracinay. Mr. Dreer also exhibited a set of a dozen varieties of hybrid Bouvardias, beautiful Petunias, a pretty heath-leaved aster flowered plant called Diplopappus Chrysophyllus, and the Musa ensete, the narrow leaved and rapid growing Banana. Among the cut flowers was the new Zinnia Haageana, a double yellowish kind, not as pretty as a common yellow pompone Chrysanthemum. Mr. Buist's collection contained many new and valuable plants. There was an excellent specimen of Agave Verschaffeltii, which we figured in a past volume of the *Monthly*. This has a long ebony spine at the termination of the leaves, and a row of ebonies on each margin. A. Ghiesbrechtii is very distinct by its grey margin. Mr. Buist is always strong in new Ferns. He had the first Lomaria gibba,—now he had an improved variety of this beautiful fern in L. g. crispa, Todœa superba, and Asplenium viviparum, were also among his beautiful ferns. The Phlomis linearis with its handsome red flowers, was as good as new, for we have not seen it before for a quarter of a century,—that good old

orchid Cattleya Mossæ, also attracted much attention by its large and showy flower. A single red waxy blossom on the Anthurium Schurzianum makes one wish for the time when one can afford to grow a good specimen of this lovely thing.

While on novelties we must notice a *white flowered* form of the old scarlet sage, exhibited by Mr. Henry Chitty of the Bellevue Gardens, of Paterson, New Jersey. It will, no doubt, become a popular novelty. But the name is too long for the mass of the people. Salvia splendens compacta alba will never do. White Scarlet Sage it will probably revert to.

Miller & Hayes, of Mt. Airy, had a fair collection of evergreens in pots. There was among them a fine Thuja ericoides, wrongly named Retinospora ericoides, which is another thing,—Retinospora plumosa aurea which proves to be one of the most desirable of hardy evergreens, and a variety of Eleagnus not yet well known, named E. marginata, with the spangled green leaves edged with gold. In their collection of plants also was a Yucca recurva, which is much in demand as an ornamental plant. It belongs to the gloriosa section.

Mr. David Fergusson's collection contained many rare plants. The Yucca gloriosa, with a considerable trunk, was conspicuous, as also was a very large plant of the "Turk's-cap" Cactus—Melocactus communis.

In the collection of Mr. Newett, gardener to Pratt McKean, Esq., was perhaps the best Lomaria gibba in the country. This is a pretty fern at the best of times, but with a trunk nearly a foot high it is very conspicuous in its unique appearance. Here was also a pretty plant of Tillandsia thyrsoidea, with three large bunches of scarlet flowers rolled up in a bouquet holder made of Pineapple leaves—so at least "one of the people" said.

Mr. McKenzie had one of the largest plant collections, in which a Tea plant laden with numberless white flowers was very conspicuous. Mr. John Dick had also a large and very choice collection.

A new exhibitor was Mr. W. T. Faust, and he had a new idea in a Cuphea platycentra trained to a single stem about two feet high, and then suffered to make a round head. There are many situations in gardening when this idea can be beautifully worked out.

Mrs. Bisset's collection was made up in a great measure of ferns, of which she is a zealous collector. Mr. Gebhard Huster, Gardener to J. B. Heyl, had a choice collection, the huge flowers of Brugmansia Knightii thrusting themselves on one's attention, but yet delighting by their delicious fragrance.

The fruit department was very good. Dr. Strentzel of Martinez, California, had a splendid collection, which came through in admirable condition. They are not as large as have heretofore been exhibited from California. Indeed a Mr. W. Patton, of Philadelphia, had Duchess Pears which beat the Californian, still they were magnificent, the Vicar Pears being particularly fine.

The handsomest set of pears in the room were contributed by the Horticultural Society of Cambridgeport, Mass. It is probable such fine Beurre Clairgeaus were never seen in the room before. Its next neighbor, Doyenne du Comice, distinguished chiefly by being more "chunky" at the "tail" end, also attracted much attention. There was afforded in this collection a chance to examine fine specimens of popular eastern varieties seldom seen on the tables of the Horticultural Society. Here was Goodale, a pear looking like a Bartlett well fattened up,—the Mt. Vernon, one of the best of the newer candidates for favor, and magnificent specimens of Marie Louise, so fine as to make a worthy old gardener at our elbow declare he "most thought he was in the ould counthry."

Satterthwaite's pears were better than last year, and were very neatly and creditably displayed, a matter not much thought of in these exhibitions. Ellwanger & Barry and Hovey & Co., also had very fine collections. If Satterthwaite was left to bear the whole credit of Philadelphia in pear culture against the heroes in the East, it was not so in apples. Shaffer, Mather and Noble, of Philadelphia, Perkins, of Moorestown, and the Franklin Co. Hort. Society of Chambersburg, had all magnificent fruit in their several displays. Last year there were some fair fruits from Vineland, and several inquiries were made for them this season, but in this good fruit year in Pennsylvania it was perhaps the part of discretion to stay at home.

The native grapes were by no means good,—we must, however, except a very handsome collection from Mr. Ricketts, of Newburgh, which seemed all the more worthy by the inferiority of the others. In hothouse grapes there were good collections by Mr. Newett, gardener to H. Pratt McKean, Esq., and Mr. Huster. These were

the chief things in the hall. On the stage the splendid collection of plants contributed by Mr W. Joyce, gardener to Mrs. Baldwin, drew many eyes. These were the more appreciated, as they could be looked down on by the spectators, whereas the plants in the main hall were perched high up on a stage, which made every visitor wish he or she was at least six feet two in the "stocking feet."

The Foyer was devoted to vegetables, in which the two Brother's Felton made the usual displays for which they are famous.

There were numerous other exhibitors of meritorious articles; but the late date at which it was held, and the "dunning" of the printer who wishes to "close up or we shall be late," compels us to ask for a leniency on so brief a notice of what was really a very handsome affair, and one creditable to all concerned.

ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA.

At the meeting on October 7th, Mr. Thomas Meehan remarked, that as botanists well knew, *Quercus prinoides* seldom grew more than two feet in height. It was one of the smallest of shrubs. In his collections in Kansas he found oaks in the vicinity of Leavenworth which made small trees from ten to fifteen feet high, and with stems from one to two feet in circumference. He was entirely satisfied that it is identical in every respect, but size, with the *Q. prinoides* of the Eastern states. Among trees there are few which produce forms as low shrubs; but the *Pinus Banksiania* in the East, but a bush of five or ten feet, grew often forty feet along the shores of Lake Superior; *Castanea pumila*, chinquapin chestnut, when it got out of the sands of New Jersey into the clayey soils west of the Delaware, often grew as large as many full grown apple trees; and the *Celtis occidentalis* which, in the East, is generally but a straggling bush along fence corners, is in Ohio a large spreading tree with enormous trunk, and in Indiana is as lofty and as graceful as an Elm.

He also exibited a section of a stem of *Wistaria Sinenis*, and called the attention of members to a curious arrangement of the wood and bark. The vertical section showed, by the annual rings of wood, that it was about twelve years old. After the eighth year's circle there was a layer of bark, and over this layer two more circles of wood. On a portion of the sections another layer of bark had formed between the tenth and eleventh year's circles of wood. The bark seemed to be wholly of liber,—the cellular matter and external cortical-layer of the regular bark appeared to be wanting. A longitudinal section showed where these internal layers of bark extended no farther upwards, and at this point there was an evident flow of wood from the interior over and down this layer of enclosed bark. He remarked that this section of wood was taken from a stem which had been led to support itself in an upright position. Where the *Wistaria* is permitted to trail along the ground, numerous rootlets are formed along its length. He thought from the appearance of the wood in the specimen presented, that rootlets had partially formed in these erect stems, pushing through the liber, and then instead of penetrating entirely through the bark, and forming perfect rootlets, they remained within the cellular matter, and, descending, joined each other laterally, thus forming a woody layer as in the regular annular course of wood. This explanation was the more plausible he thought from the fact that in woody stems formed on the ground, where the rootlets went quite through into the earth, the stems were nearly regularly cylindrical; but these upright stems on which rootlets were never seen, had an irregular fluted appearance. Of course this explanation does not accord with the formation of wood in ligneous structures as generally understood, but he could not understand how the appearance presented could have occurred in any other way than as he had supposed.

Attention was called to a twin apple on the table with two stems and stem cavities, and two calyx basins a little below which, however, an union had taken place. Mr. Meehan said these phenomena were rather common with various fruits, and the mode of production well understood. It was simply the inarching of two fruits at a very early stage of their existence, through two embryonic blossoms having perhaps been produced in juxta-position from one bud. Dr. Joseph Carson said that he thought the variety exhibited, the Winesap, had a tendency to pair young buds and thus bring forth these united twin fruit. He had once known a tree of them which produced a large proportion of the fruit of this character. He had seen perhaps a peck of them which had been gathered at one time from the tree.

The Gardener's Monthly,

DEVOTED TO

Horticulture, Arboriculture, Botany and Rural Affairs.

EDITED BY THOMAS MEEHAN.

Old Series, Vol. XIV. *DECEMBER, 1872.* *New Series, Vol. V. No.* 12

HINTS FOR DECEMBER.

FLOWER GARDEN AND PLEASURE GROUND.

We are again at the end of another year of our labor, glad to feel that they have been of some use in the spread of horticultural taste and knowledge. We are particularly glad to feel that our "hints" have not been thrown away. We endeavor to make this an especial feature of our magazine. Here we admit nothing but what has been submitted to the severe test of practice and experience. In other departments we strive to encourage thought, and allow latitude to speculations; but in this only those things are suggested that have been tried in the balance and not found wanting.

It is often said that what is science to-day is not science to-morrow. This is equally true of practice. If we take up the hand books of culture of the past generation and compare them with the present, how wonderful is the change! So even with us; conscious as we have already been that what we taught was really the best way; yet we find, year by year, our practice changes, and we have to feel that perfect culture has not been reached.

Thus our monthly hints, though season by season in some respects, necessarily similar, are always progressing; and those who follow us regularly, can but note that no course of practical conduct in the garden is so perfect that something better cannot be taught.

So it is that we have never dared to lay down any absolute rule for gardening operations. We are content to give what we write the modest name of "hints," hoping the reader will receive them as such, and give to them some thought o his own before putting them in practice.

We usually commence with the *Flower Garden*, because it is the first gardening any of us do. As children, we have our little gardens of "Johnny-jump-up's." "Forget-me-not's" "Sweet Williams" or "Roses;" and it is only as we get to fight the stern battles of life, that what we shall eat, or wherewith shall we be clothed, troubles us. Even when we become children of larger growth, a geranium or a mignonette in a window sill, is often the extent of our gardens long before the cabbage plot or the strawberry beds come into existence.

Well, these same geraniums and window flowers will want all the sun light they can get at this season. Many suppose that if plants in windows get light, that is enough; but there is nothing so good as sunlight. This is even of more consequence than heat. Flowers will generally be in greater proportion in a window at 55° than in a much higher temperature without the sunlight. Most of the old fashioned window plants are still among the best. For instance Mignonette, Sweet Alyssum, Zonale Geraniums, Cupheas, Fuchsias, Violets, Roses, Plectranthus, Chinese Primroses, Lobelias, Oxalis, *Solanum semi-baccatum* or "Jerulem cherry," (of which the dwarfer kind *S. capsicastrum*, is an improvement,) Catalonian Jasmines, Daphnes, Sweet Olive, Laurustinus, and where there is a little knowledge, Camellia and Azalea are still among the best.

The more out-door operations, however, come under our present head. One of the best hints in season, is to see what can be thinned out

There is no place that we know of where the axe and saw may not be used to advantage in even a some sort of merciless manner. Places must be planted thick in order to get an immediate effect,—and they must be thinned as they grow, if a continuously pretty place is desired. It is here that true artistic skill comes in. It takes genius to plant a place properly; but a higher cast of it to judiciously thin out. It is said that the ridiculous practice with many people of heading back their ornamental trees—especially those on the streets in winter time, originated through the advice of frozen out jobbers who wanted something to do. It is murder to the trees. They soon die outright after a few years of this treatment. If men want work, and will advise to thin out, they will do good to those who employ them, and save the wear of conscience—that is, those who have any.

Our readers will not forget the experiences of the past memorable winter, and how plants had the moisture dried out of them by the extraordinary combination of three agents all in one day, namely, a dry air with high wind, a low temperature, and roots so deeply frozen that their ability to absorb moisture was seriously impaired. It is hardly likely that these three agencies, all so favorable to a destructive loss of sap, will occur together so soon again; but we can learn from this the importance of preserving plants from losing their juices too rapidly. This can be done in some degree by laying a mulch over the roots on the surface of the ground, which will prevent the ground from getting frozen to the full depth of the roots. Besides this we have often pointed out the advantage to places of being sheltered from cold winds in winter by belts of evergreens. This advice will be appreciated at this season. Many plants like the Deodar Cedar, Cedar of Lebanon, and English Holly, can only be grown in this region, when the plants are protected by these belts. The best kinds of Evergreens for making belts, on account of their rapid growth and warmth imparting character, are the White Pine, Scotch Pine, and Norway Spruce; among deciduous trees the Larch, Silver Maple, Birch, Scotch or Sycamore Maple, and the Cottonwood Poplar, which can be cut away as the others grow.

Besides trees for shelter, good hedges serve the triple service of shelter, protection from trespass, and beauty,—setting aside their cheapness as compared with lumber fences, now that their proper management is understood, their superiority in the points we have designated gives them commanding claim on every one's attention. They need not be always of evergreens. Beech and Hornbeams are excellent deciduous things.

Thinning is not near enough practised. We often hear people complain that their trees were originally planted too thick. This is rarely the case. The warmth of thick planting makes all grow faster; and besides who wants to look at a skeleton of a place for a dozen years, while the fleshy branches are growing over it. The true philosophy is to plant thick and thin annually.

No man can be a good gardener, without the power of foresight and forethought. This is particularly a great advantage of the winter season, that we are induced to look ahead and prepare for spring,—manures, stakes, labels, tools, gravel, soils, seeds, trellises, grafts,—no one need be without a plenty to do, if proper judgment has been exercised in the matter before hand.

In the Southern States, more active operations will be going on, preparing for spring work.

Many kinds of trees that do not seem to thrive well, will be greatly improved next year by having a surface dressing of manure or rich soil thrown about them. Evergreens are no exception A singular notion used to prevail, that manure of any kind was injurious to evergreens, probably through noticing that they were usually found in poor, barren soil. Our best American coniferæ growers, however, have long practiced manuring them, and with the best results. Guano has been found particularly beneficial to the Spruce family, and it will probably be found as good for the whole family of evergreens.

GREENHOUSE.

Year by year the demand for cut flowers increases, and it is far more important in these days that a gardener keep his employer's table and family in these, than to have the nice specimen plants so much in fashion some years ago.

To have plants bloom freely at this season, heat, moisture and fresh air are essential. It is even good economy to lose some heat in order to gain the advantage of opening ventilators or windows, if the weather outside be not favorable enough without it. The Camellia, Azalea, Daphne, Stevia, Poinsettia, Euphorbia, Violets, Tree Carnation, Lopezia, Eupatorium, Cineraria, Perennial Candytuft, Deutzia gracilis, Tea and Noisette Roses, Epiphyllum truncatum,

Hermannia odorata, Acacia, Bletia, Scarlet Geraniums, Strelitzia, Chorizema, and most kinds Australian plants, Verbenas, Bouvardia, Heliotrope, are a few of the best things to grow for cutting, that occur to us as we write. The temperature should not often be below 55° to be secure of a good bloom.

We ought perhaps to add the Rose to this list. It is however not a very free plant to flower in the winter, unless an abundance of light can be afforded. Even then some classes of Roses are unfit for it. Only the Tea class and some of the Noisettes will do; there are not many of this last,—Lamarque being one of the few to do well. Cels, Saffrano, Triomphe de Luxemburg, Horner and Madame Russel are about the best. The Camellia and Azalea are particularly valuble for cutting. The Whites are the most popular for this purpose, principally the old Double White and Candidissima; the last comes into flower a little later than the other kind. In cutting these, only the flowers are taken off, and artificial stems in the shape of small wires are given to them. The common white azalea, Azalea indica alba is also very popular among white flowers.

The Camellia is very apt to drop its buds if the atmosphere is too dry; but generally dropping follows any check to the roots by which the regular flow of moisture to the bud is stopped. This may be either too little or too much water; if too little, of course there is not enough moisture; if too much, the fibres are liable to have their points injured, and thus are unable to draw moisture to the bud. Usually the last bad results follow from over potting. With a large mass of soil, water is apt to not pass readily away, when the soil "sours," as it is termed. A pot full of roots will seldom drop the Camellia buds for any other cause than too little water.

A great enemy of the Camellia is the Red Spider. The leaves indicate its presence generally by a brown tinge, when the pocket lens, which every gardener of course carries, readily detects. All plants are more or less liable to these insects, as well as the green fly, mealy bug and scale. The best way to keep them down is by a free use of the syringe in fine days, using water in which some sulphur has been strewn. Tobacco smoke is still the best cure for aphis. Scale is a very troublesome pest; water heated to 130° is still the best. This injures very tender leaves; but the scale is rarely on such, it usually keeps to he branches or on thick leathery leaves.

Tree Carnations,—these also now indispensable winter flowering plants, want a very light place to do well. They do not generally care about very large pots—about five or six inches—but they are very much benefited by rich manure water.

The Calla Lily is now extremely popular. This also loves light. It must have a good supply of water, and good soil to flower well.

Towards spring the *Cineraria* comes in remarkably well for cutting. This is a "queer" plant. It is one of the easiest to suffer from frost, and yet will not do well in a high temperature. It also requires much light, and to be very near the glass. So also of the *Pansy* and *Violet*, although some frost will not hurt these.

If *Pelargoniums* are wanted to flower well next May and June, they should be attended to, and grow well through the winter. They want a rather warm house to keep them growing, and should be pinched back as they grow, to keep them bushy.

A good supply of young *Fuchsias* should be coming on now—repot as their roots fill each pot, let them not want for moisture or light; do not pinch off their tops, but let them grow rapidly. The temperature in which they are grown should not exceed 55°. A turfy loam, moderately enriched with well decayed manure, and well drained with charcoal, suits them admirably.

VEGETABLE GARDEN.

Very little can be done now in this department, except by way of preparation for another year.

Manure can be placed on the ground wherever required, and Asparagus beds, if not already done, should have a slight covering of it. Bean poles, Pea-brush, and stakes of all kind should be got now, the tool house gone over and put in order, and everything kept in good order and studiously in its place. When the season of operations commences, there will then be nothing to hold back the attention.

Where there can be heat of 60° commanded, Bush Beans can be usually grown in pots, and can be gathered in two months from time of sowing.

If there is abundance of leaves or manure at command, and small frames, beds may be put up for early spring salads, at the end of the month.

Radishes and Lettuces are, however, very im-

patient of too much heat; they will come on well if the temperature be kept at 45°. When it goes above that, the sashes should be lifted entirely off.

The same remarks apply to the Potato and the Early Horn Carrot.

Cauliflowers in frames require all the air possible. Never allow them to become dry; this is the cause of many failures by way of "buttoning off"

COMMUNICATIONS.

RECOLLECTIONS OF A JOURNEY FROM BRISBANE, QUEENSLAND, TO ARMADALE, NEW SOUTH WALES.

BY WM. T. HARDING, NONANTUM HILL NURSERY, BRIGHTON, MASS.

In a previous communication, headed "Rambles in Queensland," I endeavored to describe how pleasantly we meandered among the flowers and arboreal marvels of the antipodes, through some of the most picturesque scenes "the great Architect of the universe" presents to the admiring travelers. Well may the heart pulsate with gratitude to "the giver of all good," who so beautifies His earthly kingdom, and gives to simple nature such terrestial charms, with all the bright tints and colors of the soul-visioned celestial panorama of "the better land." Such happy and delightful scenes as these were undoubtedly formed "to make glad the heart of man," and brighten up the smouldering embers of his heart to a glowing heat, and with love warm the bosom of every child of nature.

"It was in the summer time, when leaves grow green,
And flowers are fresh and fair,"

As the soft sea breezes waved the Acacia groves in the fading sunlight, which seemed to linger in the highest branches of the lofty Eucalyptuses, which overlook the mangrove thickets, and belt, as it were, the shores of Moreton Bay, on the coast of New Holland.

It was there I left in the genial company of the editor, his friends, the good readers of the *Monthly*, so happily blessed with strong imaginations, ideally feasting with a delicious gusto on all the choice fruits their appreciative palates could indulge and delight in.

I sincerely hope that both he and his intellectual epicures, while guests of "Pomona," fared sumptuously at her banquet, and duly enjoyed the fancied good.

I refer the kind reader to page 335 of the November number of the *Monthly* for 1870, in which appeared a brief account of a journey to the Araucaria excelsa groves on Norfolk Island, Oceanica; and which, in the course of consecutive events, should have properly preceded this. From here I embarked for that famous island, whose early associations were not of a very pleasant nature. In past times it was occupied as a penal settlement, and peopled with the incorrigible rogues and scoundrels of Great Britain, "grand scamps," "who left their country, for their country's good." It is now a very promising colony, and contains the offspring of the mutineers of H. M. S. "Bounty," who, after seizing the ship, sailed to Otaheita, and there procured a number of women for "better-halves," conveyed them to Pitcairns Island, and there broke up the vessel and formed a settlement. Quarrels, arrising on account of the women, led to bloodshed and death among the sailors, until only one was left, John Adams, the chief mutineer, who seems to have "repented him of the evil of his ways" and in the character of a patriarchal father, governed the numerous progency of Anglo-Otaheitians which surrounded him. So prolific were the offspring, who in time were so "fruitful and multiplied" so rapidly, that it seemed but a question of time as to how long they could find subsistance and room on so small a spot to exist on. Fortunately the matter was humanely settled by the English government, who generously forgave the old man Adams, and removed him and his people to Norfolk Island, where now, strange to say, vice is said to be unknown.

Queensland, at the time I allude to, was a portion of New South Wales, and was known as Moreton Bay Settlement, with Brisbane the chief city, now the capitol of that flourshing colony.

On returning from Norfolk Island, I attended the Horticultural and Agricultural Society's Show, where the colonists exhibited fruits, flow-

ers and vegetables, with cereals and general farm produce. Live stock, such as horses, cattle, sheep and shepherds' dogs, swine, poultry, &c., of all of which very fair specimens were presented. Articles of colonial growth and manufacture, such as properly prepared hemp, cotton, olive oil, tobacco, flax, linseed oil, silk, leather, hops, woolen goods, paper, &c., occupied considerable space, and especially engaged the attention of the manufacturing and agricultural portion of visitors who were interested in such matters.

Of such fruits as were previously mentioned, there was an abundance; and of flowers the same. But what seemed to be the centre of attraction among the many, and claimed the most attention in the floral department, were three flower-pots, each containing a specimen of Bellis perennis, B hortensis and B. prolifera, orther-wise known as English Dog daisies. Simple little flowers as they were, happy reminiscences attached to them, and brought back to memory the time

> "When the odor came down from the chestnut trees,
> In the meadows where daisies grow,"

in the far away, though not forgotten, old England.

Of the daisy, "Scotia's Bard" speaks of it as a "Wee modest, crimson tipped flower," and the quaint old poet Chaucer, calls it "La belle Marguerite, a commendable flower and most in mind," of no doubt pleasant recollections of the days of yore.

Well might Montgomery say "The daisey never dies."

Of all the gorgeous, beautiful, sweet, or grand flowers, I ever beheld in a life time spent among them; the three little daisies, endeared by a thousand associations as they were, seemed then to be "the fariest of the fair."

From Brisbane to Paramatta, through the "bush," is a long and fatiguing, though interesting, journey, as we push onwards "through brake and glen," over hills and mountain ranges, which constitute the Australian Alps. On the summits of the rocks perched handsome bushes of Lalage ornata, which I saw for the first time, and probably the last also, as I have never met with it since then. It is a beautiful leguminous plant, well covered with purple flowers, dashed with orange; and, as a greenhouse plant, would be a decided acquisition. In the same elevated position were clumps of Lambertia formosa, with some fair specimens of Australian oaks, Stenocarpus Cunninghamii, Araucaria excelsa, rather stunted and lower down, the remarkable Kauri pine, Dammara Australis, whose smooth and polished blue shafts had more the resemblance of enormous slate columns than stems of living trees.

On the shady sides of the rocky slopes were some very pretty ferns, whose handsome fronds were closely enveloped in a dense wool-like covering. *Eriochasma* sulcata and E. tomentosa; the latter a very striking and distinct variety.

In the same region I observed some fine bushes of Drynaria Billardeirii and D. diversifolia, with an occasional specimen of Edwardsia Macnabiana, a plant much admired, and deservedly so, in all first-class collections.

As we passed along over flowery hills and verdant dales, where every footstep pressed a flower, you may readily imagine how interested and delighted we were with the wildly romantic scenes on every side. Gracefully drooped the tall ferns, Alsophila Australis, side by side with the peculiar Casuarina glauca, always a conspicuous and remarkable tree where ever seen, with some splendid specimens of stately palms, Corypha Australis, with rich masses of Acacia pubescens, and A. grandis overhung the fern covered gullies.

Microlepea rhomboides, a small though beautiful fern, spread out its pretty little fronds over mountain and moreland like Caledonia's "lowly green brecken." One of the most perfect specimens of the grotesque looking grass trees, Xanthorrhœ Australis, stood alone "in silent solitude," and a more peculiar or remarkable arboreal object would be difficult to imagine or describe. Baurea rubifolia, a neat evergreen shrub of dwarf habit, Calythryx glabra, another beautiful evergreen well furnished with clusters of white flowers; Leptospermum grandiflora, a nice looking shrub, like a myrtle in appearance, Eutaxia pungens, a comely shaped bush, profusely covered with handsome leguminous orange colored flowers, mingled with clumps of Patersonia longifolia, a very pretty blue flowering herbaceous plant, Elichrosum scorpioides, Persoynia spathulata, several Callistachys, and Epacrises. Pimelias in several varieties were literally covered with bloom. They are decidedly handsome evergreen shrubs, and well deserve cultivating in every greenhouse; in fact, wherever there is room for half a dozen plants, one at least should be one of them. Probably some of the readers will remember, as I know you, Mr. Editor, do

seeing the famous collection of New Holland plants growing at Ealing Park, in the suburbs of London, and owned by the celebrated Mrs. Lawrence, of horticultural fame. If so, imagine you see better grown specimens flourishing and flowering abundantly, where nature, unaided by the art of man, has caused them "to blossom as the rose in the wilderness."

Araucaria Cunninghamii grew in dense and formal clumps among the various species of Acacias, which generally grouped together on the hill sides and grassy lowlands we were approaching.

Immense flocks of sheep were quietly grazing among the many beautiful shrubs and stately forest trees, which give such a peculiar charm to the Australian landscape.

The loud barking of dogs also gave indications that we were nearing some sheep farm, or bush station, when, to our surprise, we suddenly came in sight of some elaborate carving upon the trunk of a colossal Eucalyptus, whose immense girth of forty nine feet, afforded ample space for the artist to operate upon. It was certainly "a strange device," to wit, the English coat of arms with the proper quarterings and armorial bearings. The rampant lion and unicorn, life size, supported a shield with the usual heraldric devices and well-known scroll and motto of the stereotype pattern. Upon the reverse side was a well executed figure of "George and the Dragon." The doughty champion was mounted on his prancing steed, engaged in a fearful combat with a terrible monster. Above the combatants, cut in bold and deeply carved letters, were inscribed "Saint George and merrie England." The inscription on "the rosetta stone," although more difficult to decipher, could not possibly have afforded more interesting speculations to the discoverer, than did the mystical or historical carving upon the ancient gum tree.

Before my curiosity had been satisfied with an examination of the novel sight before us, we were assailed by a pack of "mongrel curs," and were glad to find safety in the branches of a large Citrobatus multiflorus bush near by.

While perching among the prickly branches, which were covered with sharp spines like "the quills of the fretful porcupine," among which grew a small yellow insipid fruit resembling an orange, and is known to the settler as the orange thorn, the canine furies gathered beneath, when such a noisy, raving, yelling demonstration began, with snarling, barking, howling and "gnashing of teeth," as only bushmens' brutes are capable of. While so situated, I wondered if Watts was ever in such a dilemma when he said, "Dogs delight to bark and bite."

I must confess I had then, and have now, a very poor opinion of "dogs delight," and felt thankful they could not climb up to us and enjoy such dental pleasures as the carnivorous animals seemed so anxious for. After firing several shots and a good deal of c-o-o-e-e-ing, two men, armed with double barreled guns, made their appearance, and hailed us. Never did I think "Queen's English" sounded more pleasantly. The dogs were called off, and dispersed, and we were soon on terra firma shaking hands with our new acquaintances, who congratulated us on so narrowly escaping the jaws of dogs, if not "the jaws of death."

We gladly followed our deliverers, who led the way for about a quarter of a mile through a grove of Ficus macrophylla, Cargilea laxa, and Melostomas of various kinds, with foliage and flowers as beautiful as most of their congeners are, and soon entered "York," a sheep station. Yes, good readers, we were in the city of York, (so-called,) and were welcomed by all the people who occupied the one house or hut in that silvan city. We were generously tendered and accepted the hospitalities of the citizens, whose honored guests we were some twenty-four hours or more. I doubt if ever any State or civic entertainment in the ancient city of York, and presided over by the Lord Mayor, was of a more sociable or enjoyable nature than was ours, feted and feasted as we were.

It seldoms falls to the lot of a traveler to meet with all the inhabitants of a city so good-natured, intelligent, and kindly disposed as were the denizens of "York."

The people's pursuits or occupations were, viz: one hut-keeper and three shepherds. One of them had formerly been a flax merchant in Belfast, Ireland. Another had practised law in Edinburgh, Scotland. Of the other two, one had been a silversmith in London, and the other was once a skilful carver and guilder in the city of York, and whose handy works were visible on every part of the hut and adjacent tree trunks.

He, Mr. Carver, when at Sidney, N. S. W., in 1838, remembered meeting with Mr. James Backhouse, the well-known nurseryman of York, England, who spent some five or six years traveling through Australasia. From Sidney they made the voyage to Van Diemen's Land to-

gether, where they separated for the last time.

After passing a sleepless night, engaged in pleasant conversation with our kind entertainers, giving them all the news we were stored with of Australia, England and other parts of the world, we reluctantly left the forest city and its kind and hospitable people, who turned out en mass and escorted us down "Parliament street," where, shaking hands with the entire population, and bidding each and all adieu, we journeyed on, thinking of the solitary and monotonous life these "gentlemen of fallen fortunes" were doomed to follow. Fate seemed to have brought them together to share life's vicissitudes in the bush, and enjoy in common the few comforts which fell to their lot. No doubt but what they had practically tested the truth of Goldsmith's remarks:

"Man wants but little here below,
Nor wants that little long."

It was "high noon," and hot enough to scorch a "Shadrach," when we halted from sheer inability to proceed further. We sought the shade as best we could beneath some large Pittosporum ligustifolia bushes—an evergreen shrub, well-known to most people as a good old-fashioned greenhouse plant. Feverish with the excessive heat and as thirsty "as the heart that panteth for the water brooks," we rested, or rather waited for some time. How distressingly enervating is the intense summer heat which quivers on the earth like moulten metal when at a white heat, and with a blinding glare painfully scorches and sorely inflames the travelers' eyes. Opthalmia, in consequence, is common to all parts of Australia, and causes much suffering.

We had exhausted our supply of water and were unable to replenish again. The refreshing showers are few and far between which fall in that country during the summer months. Winter, or the rainy season, is the time when the deluging rain soaks the parched soil and fits it for the husbandman. I tried to moisten my tongue with the juice of some Mesembryanthemum leaves, or midday flowers, as the settlers call them, from the fact of their blossoms only opening during the middle of the day. While lying beneath the bushes I observed Mesembryanthemum abœviatum in full bloom, and while admiring its simple beauty, which I watched until it closed, thought of poor Park when "on Afric's burning sands," as how probable it was one of the genera he alluded to, and called to mind his well remembered words. Of Mesembryanthemums indigenous to Africa, there are known to botanists nearly six hundred species, while five or six represent the total of New Holland. They are not found as native plants in any other part of the world, I believe. In the neighborhood of Port Adelaide, South Australia, and stretching for miles along the sea beach, may be seen M. stipioides and M. alcinifolia, the latter often flourishing in thick masses on the salt encrusted plains.

After waiting until the fiery red sun was sinking behind the forest covered hills, we again resumed our journey; the heat being considerably reduced, was less oppressive, so we continued on until midnight.

The refulgent moon, radiant among the pale stars which surrounded her azure throne, looked serenely down from above, and shed her softened light upon all things below, and bathed in liquid silver every flower and tree. The voice of nature was hushed, as in quiet and peaceful slumber we reposed at the foot of her star-lit throne. How often on such occasions, in the stillness of night, when musing in silence alone, in the deep recesses of the forest, we are forcibly reminded of "the place which passeth all understanding." There is something so impressive in the situation which seems to arouse the soul slumbers and wake up drowsy memory to live over the past, in fancy, again.

The rosy fingers of "Aurora" had opened the gates of day "and tipped the hills with gold" as "Sol" arose from his cloud bed to rule the day and give light and life to the world.

The dew spangled flowers, fresh and fair as they were, with the sweetest of odors, perfumed the breath of early morn. Boronia serrulata, sweet and modest little flower, whose exquisite fragrance mingled with Tasmannia aromatica its delightful aroma. The latter is a beautiful evergreen shrub, and in Van Diemen's Land, where I first saw it, is used as a substitute for pepper, and named in honor of Tasmann, who first discovered the island.

Groups of Elaeocarpus cyanus, Podocarpus aspleniifolia, Cassinea spectabilis, a beautiful foliaged plant, with pretty yellow flowers, Chelodia scutellariodes, a very ornamental plant which blooms in rich masses of violet-colored labiate flowers, blended with Zamias, Pandanus, Leoistonea, Dracœnas, Cordylines, Xanthorroes, Driyandrias, Banksias, Phebaliam, Laurus, Seaforthias, Acacias, Furcroes, &c., with other singular and curious growing trees, shrubs and her-

baceous plants, formed a motly picture; while some were grouped and massed in the orthodox style of landscape gardening.

Such a sight would have delighted the professors of the gentle art, from the time Evelyn practised, and such worthy followers as Walpole, Shenstone, Thouin, Loudon, Kemp, Downing, Sargent, Gilpin and Strutt. You, Mr. Editor, well know, and probably many of your intelligent readers are acquainted with the subjects here named, and will recognize them as some of the most remarkable, curious and extraordinary representations of the vegetable kingdom.

How peculiarly formed and strangely abnormal appear most of the trees, shrubs and herbaceous plants of the antipodes, in contradistinction to those of other lands—and all are evergreen.

Following the course of a shallow stream for several miles through a very romantic valley, which deepened as we proceeded to one of the wildest ravines I ever wandered through, until we struck the Dumresque river about noon, when a slight accident delayed us for several hours, and while so detained witnessed the singular solar phenomenon of three apparent suns shining simultaneously. That it was an optical illusion I was well aware, notwithstanding, it was a novel and singular sight to me.

We passed several bush stations, where we were kindly received by the settlers, who seemed bent upon making us "eat, drink and be merry." I cheerfully accepted their invitations and partook of a sufficiency of "damper," kangaroo and tea, as made me feel so. The bill of fare was excellent, omitting the "damper." It is pleasant to remark that, while engaged in Australia, "the sympathy which makes the world akin," I invariably met with, among the isolated squatters in the "bush." Good nature, like their "flora," seemed to be everywhere perrennial and evergreen.

Once again on the beaten track, we made good our way through a gap in the mountain ridge, and soon after entered the picturesque little town of Armadale, so quietly nestling beneath the shade of its venerable old gum trees, whose enormous trunks were indeed veritable "towers of strength," and like the "ancestral oaks" of England, seemed likely to remain "hale, green trees for a thousand years to come."

ORCHIDEÆ No. 7.

BY MR. JAMES TAPLIN, MANAGER TO GEORGE SUCH, ESQ., SOUTH AMBOY, N. J.

VANDA CŒRULEA.

The Vandas generally may be reckoned among the aristocracy of flowers, if aristocrats in flowers are allowed in this free and enlightened country; but joking aside, these plants generally require a very high temperature and careful treatment to obtain satisfatory results. This species is generally considered rather difficult to manage, being frequently infested with the spot, a disease never yet satisfactorily explained, but supposed by many to be of fungoid origin, in fact a species of mildew. This disease very much disfigures the foliage, killing it in patches, and finally the plant, if not prevented. The only preventive I consider is to grow this species in a comparatively cool house; we grow it with the Cattlea, instead of the East Indian house in which most of such plants as Vanda cœrulea, Phalœnopsis, &c., are grown.

I consider the above plant the most handsome of the Vandas, the lovely blue being unique among Orchideæ, and the flowers last for six weeks. We have had it in flower now, October 28th, more than five weeks; of course the flowers must be kept dry, or they spot and the beauty is spoiled.

The best plan to grow this plant is in a wooden basket with a few broken pieces of pots, or charcoal and a small quantity of live spagnum moss, and to keep the roots moist at all times, for the Vandas have no bulbs to store up moisture, and if allowed to get very dry or be kept in a dry aired house the leaves shrivel, turn yellow and eventually fall off, which soon results in a leggy plant with a few leaves on the top. This will always be a scarce and expensive plant, for it increases very slowly, and the few who possess plants seldom like to part with them, as they are difficult to import, as well as scarce and dear, a small plant being worth fifty dollars. I have used Vanda cœrulea flowers in choice bouquets, and when combined with a good selection of other choice flowers the effect was very fine.

NIGHT BLOOMING CACTUS.

BY MISS A G., READING, PA.

Epiphyllum grandiflorum.—This Cactus has broad, flat leaves, and if not trimmed, will grow to a great size; we have one over five feet in height. and still growing. I have seen two others as large During the winter the plant

sends up tall round stems which, in summer, throw out long flat leaves. The curious bud is produced in a notch of the leaf, and after attaining 2 or 3 inches in length grows rapidly. It requires from 3 to 4 weeks to perfect. When the long stem of the flower curves and turns up, the opening of the blossom may be expected in 3 or 4 days, if the weather is warm; it is 4 or 5 inches in diameter, and cup-shaped, appearing as if formed of white feathers, the colored petals standing out like a halo around it; the stamens and pistils are exquisitely beautiful; the flowers are so large, and their appearance so elegant, that those who behold it for the first time stand in wonder and admiration. It is also heavily freighted with an unusual and delicate fragrance. This plant blooms once a month during the warm months, some buds coming out as late as October, if protected by a greenhouse. Large plants produce from 10 to 15 buds at a time; they open about twilight and continue to expand till after 9 o'clock, P. M. They close about 12 M., and by morning, they are in a wilted condition. The buds should be well watched as they increase in size, being wellandcuriously wrapped with the long maroon red petals; their unfolding is sign of the near opening of the flower, and the least show of the white petals is an indication that they will flower that night.

These plants bloom well in a mixture of one part garden mould, one of woods earth, one part silver sand, and one part manure—chicken manure being the best. They should be moderately watered (never dried) till they show signs of growth, then very freely. In summer-time they must not be exposed to the mid-day sun, or the leaves will scorch to an ugly yellow, and the young buds dry and fall off. They are very sensitive to frost, and should be taken in the house before there is the least danger of it. We have seen the leaves of a fine plant turned quite black on their edges by neglect of care in this respect. It is a handsome plant exclusive of the flowers, therefore the broad flat glossy leaves should receive their meed of attention too. This Cactus requires repotting every two or three years to keep up a good show of bloom; April is a good time for this, or even earlier. If merely transferred from a small to a large pot, a later time will do. The Epiphyllum grandiflorum is a native of Brazil.

[Our correspondent probably refers to *Epiphyllum latifrons.*—ED.]

DISTRIBUTION OF PLANTS.

BY PROF. ASA GRAY.

Concluded.

Each and every one of the analogous cases I have been detailing—and of which I could adduce very many more—raises the same question, and would be satisfied with the same answer. These singular relations attracted my curiosity early in the course of my botanical studies, when comparatively few of them were known, and my serious attention in later years, when I had numerous and new Japanese plants to study in the collections made (by Morris, Williams and Morrow) during Commodore Perry's visit in 1853, and especially, by Mr. Charles Wright, in Commodore Rodger's expedition in 1855. I then discussed this subject somewhat fully, and translated the facts within my reach. This was before I ever had developed the rich fossil botany of the arctic zone before the immense antiquity of existing species of plants was recognized, and before the publication of Darwin's now famous volume on the "Origin of Species" had introduced and familiarized the scientific world with those now current ideas respecting the history of species, with which I attempted to deal in a moderate and feeble way. My speculation was based upon the former glaciation of the northern temperate zone, and the inference of a warmer period preceding (and, perhaps, following). I considered that our own vegetation, or its proximate ancestry, must have occupied the arctic and sub-arctic regions in Pliocene times, and that it had been gradually pushed southward as the temperature lowered and the glaciation advanced even beyond its present habitation; that plants of the same stock and kindred, probably ranging round the arctic zone as the present arctic species do, made their forced migration southward upon widely-different longitudes, and receded more or less as the climate grew warmer; that the general difference of climate which marks the eastern and western sides of the continents—the one extreme, the other mean—was doubtless even then established, so that the same species and the same sort of species would be likely to secure and retain foothold in the similar climates of Japan and the Atlantic United States, but not in intermediate regions of different distribution of heat and moisture; so that different species of the same genus as in *torreya*, or different genera of the same group, as Redwood, *taxodium* and *glyptos-*

tribus, or different associations of forest-trees might establish themselves each in the region best suited to their particular requirements, while they would fail to do so in any other. These views implied that the sources of our actual vegetation and the explanation of these peculiarities were to be sought in and presupposed an ancestry in Pliocene or still earlier times, occupying the high northern regions. And it was thought that the occurrence of peculiarly North American genera in Europe, in the Tertiary period (such as *taxodium*, *carya*, *liquidamber*, *sassafras*, *negundo*, etc.,) might best be explained on the assumption of early interchange and diffusion through Northern Asia, rather than by that of the fabled Atlantis. The hypothesis supposed a gradual modification of species in different directions under altering conditions, at least to the extent of producing varieties, subspecies, and representative species, as they may be variously regarded; likewise the single and local origination of each type, which is now almost universally taken for granted.

The remarkable facts in regard to the Northeast American and Northeast Asiatic floras, which these speculations were to explain, have since increased in number, more especially through the admirable collections of Dr. Maximowics in Japan and adjacent countries, and the critical comparisons he has made and is still engaged upon. I am bound to state that in a recent general work by a distinguished botanist, Prof. Guisebach of Gottingen, these facts have been emptied of all special significance, and the relations between the Japanese and the Atlantic United States floras may be said to be more intimate than might be expected for the situation, climate, and present opportunity of interchange. This extraordinary conclusion is reached by regarding as distinct species all the plants common to both countries between which any differences have been discerned, although such differences would probably count for little if the two grew in the same country, thus transferring many of my list of identical to that of representative species, and by simply eliminating from consideration the whole array of representative species—i. e., all cases in which the Japanese and the American plant are not exactly alike. As if, by pronouncing the cabalistic word *species* the question was settled, or rather the greater part of it remanded out of the domain of science, as if, while complete identity of forms implied community of region, any thing short of it carried no presumption of the kind—so leaving all these singular duplicates to be wondered at, indeed, but wholly beyond the reach of inquiry. Now, the only known cause of such likeness is inheritance, and as all transmission of likeness is with some difference in individuals, and as changed conditions have resulted, as is well known, in very considerable differences, it seems to me that if the high antiquity of our actual vegetation could be rendered probable, not to say certain, and the former habitation of any of our species, or if very near relatives of them in high northern regions could be ascertained, my whole case would be made out.

The needful facts, of which I was ignorant when my essay was published, have now been for some years made known, thanks mainly to the researches of Heer upon ample collections of arctic fossil plants. These are confirmed and extended by new investigations, the results of which have been indicated to me by the latter. The *taxodium*, which everywhere abounds in the Miocene formations in Europe, has been specifically identified, first by Goeppert, then by Heer, with our common cypress of the Southern States. It has been found, fossil in Spitzbergen, Greenland and Alaska, in the latter country along with the remains of another form, distinguishable, but very like the common species; and this has been identified by Lesquereux in the Miocene of the Rocky Mountains. So there is one species of tree which has come down essentially unchanged from the Tertiary period, which for a long while inhabited both Europe and North America, and also at some part of the period the region which geographically connects the two (once doubtless much more closely than now), but survives only in the Atlantic United States and Mexico. The same *Sequoia* which abound in the same Miocene formations in North Europe has been now abundantly found in those of Iceland, Spitzbergen, Greenland, Mackenzie River and Alaska. It is named *Sequoia langsdorfii*, but is pronounced to be very much like *Sequoia sempervirens*, our living redwood of the Californian coast—to be the ancient representative of it. Fossil specimens of a similar, if not the same, species have been recently detected in the Rocky Mountains by Hayden, and determined by our eminent paleontological botanist, Lesquereux, and he assures me that he has the common redwood itself from Oregon, in a Tertiary age. Another *Sequoia* (*Sequoia sternbergii*,) discovered in Miocene de-

posits in Greenland, is pronounced to be the representative of *Sequoia gigantea*, the big tree of Californian sierra. If the *taxodium* of the Tertiary time in Europe and throughout the arctic regions is the ancestor of our present bald cypress, which is assumed in regarding them as specifically identical, then I think we may with our present light fairly assume that the two redwoods of California are the probable descendants of the two ancient species which so closely resemble them. The forests of the arctic zone in Tertiary times contained at least three other species of *Sequoia*, as determined by their remains, one of which, from Spitzbergen, also much resembles the common redwood of California. Another, "which appears to have been the commonest coniferous tree on Disco," was common in England and some other parts of Europe. So the *Sequoias*, now remarkable for their restricted station and numbers, as well as for their extraordinary size, are of ancient stock; their ancestors and kindred formed a large part of the forests which flourished throughout the polar regions, now desolated and ice-clad, and which extended into low latitudes in Europe. On this continent one species at least had reached to the vicinity of its present habitat before the glaciation of the region. Among the fossil specimens already found in California, and which our trustworthy paleontological botanist has not yet had time to examine, we may expect to find evidence of the early arrival of these two redwoods upon the ground which they now, after much vicissitdue, scantily occupy. Differences of climate, or circumstances of migration, or both, must have determined the survival of *Sequoia* upon the Pacific; very similar would seem to have been the fate of a more familiar gymnospermous tree, the ginko, or *salisburia*. It is now indigenous to Japan only. Its ancestor, as we may fairly call it, since, according to Heer, "it corresponds so entirely with the living species that it can scarcely be separated from it," once inhabited Northern Europe and the whole arctic region round to Alaska, and had even a representative farther south in our Rocky Mountain district. For some reason, this and *glystrobus* survived only on the shores of Eastern Asia. *Libocedrus*, on the other hand, appears to have cast in its lot with the *Sequoias*. Two species, according to Heer, were with the ancient ones in Spitzbergen. Of the two now living, one *L. decurrens*—the incense cedar—is one of the noblest associations of both the present redwoods; the other is far south in the Andes of Chili. The genealogy of the *Torreyas* is more obscure; yet it is not unlikely that the yew-like trees, named *taxides*, which flourished with the *Sequoias* in the Tertiary arctic forests, are the remote ancestors of the three species of the torreya, now severally in Florida, in California, and in Japan. As to the pines and firs, these were more numerously associated with the ancient *Sequoias* of the polar forests than with their present representatives, but in different species, apparently more like those of Eastern than of Western North America. They must have encircled the whole polar zone then as they encircle the present temperate zone now.

I must refrain from the numeration of the angiospermous or ordinary deciduous trees and shrubs, which are now known by their fossil remains to have flourished throughout the polar regions when Greenland better deserved its name, and enjoyed the present climate of New England and New Jersey. Then Greenland and the rest of the north abounded with oaks, representing the several groups of species which now inhabit both our eastern und western forest districts; several poplars are very like our balsam-poplar or our balsam-of-Gilead-tree; more beeches than there are now, a hornbeam, and a hop-hornbeam, some birches, a persimmon and a plane-tree, near representatives of those of the Old World, at least of Asia, as well as of Atlantic North America, but all wanting in California; one *juglans*, like the walnut of the Old World; two or three grape vines are near our Southern fox-grape or muscadine, the other near our Northern frost-grape; a *tilia*, very like our basswood of the Atlantic States, only a *liquidamber;* a magnolia, which recalls our *Magnolia grandiflora*; a *liriodendron*, sole representative of our tulip-tree; and a sassafras very like the living tree. Most of these, it will be noticed, have their nearest or their only living representatives in the Atlantic States, and, when elsewhere, mainly in Eastern Asia. Several of them, or of species like them, have been detected in our Tertiary deposits west of the Mississippi by Newberry and Lesquereux. Herbaceous plants, as it happens, are rarely preserved in a fossil state, else they would probably supply additional testimony to the antiquity of our existing vegetation, its wide diffusion over the northern and more frigid zone, and its enforced migrations under changes of climate. Supposing, then, that our existing vegetation, as a whole,

is a continuation of that of the Tertiary period, may we conclude that it absolutely originated then? Evidently not. The preceding Cretaceous period has furnished to Carruthers in Europe a fossil print like that of the *Sequoia gigantea* of the famous groves, associated with pines of the same character as those that accompany the present tree; has furnished to Heer, from Greenland, two more *Sequoias*, one of them identical with a Tertiary species, and one nearly allied to *Sequoia langsdorfii*, which in turn is a probable ancestor of the Californian redwood; has furnished to Lesquereux, in North America, the remains of another ancient *Sequoia*, a *glyptostrobus;* a *liquidamber*, which well represents our sweet-gum-tree; oaks, analogous to living ones, leaves of a plane-tree, which are also in the Tertiary, and are scarcely distinguishable from our own *Platanus occidentalis;* of a magnolia and tulip-tree; and "of a sassafras undistinguishable from our living species."

I need not continue the enumeration. The facts will justify the conclusion which Lesquereux—a very scrupulous investigator—has already announced, that "the essential types of our flora are marked in the Cretaceous period, and have come to us after passing, without notable changes, through the Tertiary formations of our continent." According to these views, as regards the plant, at least, the adaptation to successive times and changed conditions has been maintained, not by absolute reversals, but by gradual modifications. I, for one, cannot doubt that the present existing species are the lineal successors of those which flourish and bloom around us are to their conditions now. Order and exquisite adaptation did not wait for man's coming, nor were they ever stereotyped. Organic Nature, by which I mean the system and vitality of living things, their adaptation to each other and to the world, with all its apparent and indeed real stability, should be likened, not to the ocean, which varies only by tidal oscillations from a fixed level to which it is always returning, but rather to a river so vast that we can neither discern its shores nor reach its sources, whose onward flow is no less actual because too slow to be observed by the ephemera which hover near its surface or are borne upon its bosom. Such ideas as these, though still repugnant to some, and not long since to many, have so possessed the minds of the naturalists of the present day that hardly a discourse can be pronounced or an investigation prosecuted without reference to them. I suppose that the views here taken are little, if at all, in advance of the average scientific mind of the day. I cannot regard them as less noble than those which they are succeeding. An able philosophical writer, Miss Frances Power Cobbe, has recently and truthfully said:

"It is a singular fact that when we can find out how any thing is done, our first conclusion seems to be that God did not do it. No matter how wonderful, how beautiful, how intimately complex and delicate has been the machinery which has worked, perhaps for centuries, perhaps for millions of ages, to bring about some beneficent result, if we can but catch a glimpse of the wheels, its divine character disappears.—('Darwinism in Morals,' in *Theological Review*, *April*, 1871.')

I agree with the writer that the first conclusion is premature and unworthy; I will add deplorable. Through what faults or infirmities of dogmatism on the one hand, and skepticism on the other, it came to be so thought, we need not here consider. Let us hope, and confidently expect, that it is not to last; that the religious faith which survived, without a shock, the notion of the fixity of the earth itself, may equally outlast the notion of the absolute fixity of the species which inhabit it; that, in the future, even more than in the past, faith in an order which is the basis of science will not (as it cannot reasonably) be dissevered from faith in an Ordainer, which is the basis of religion.

MONSTERA DELICIOSA.

BY W. T. HARDING, NONANTUM HILL NURSERY, BRIGHTON, MASS.

Monstera deliciosa, or rather as Mr. W. Burnett states more correctly, Philodendron pertusum, is indeed a very peculiar plant, and is to be found generally in all good hothouse collections in this country. Mr. R. Buist, nurseryman of Philadelphia, has probably sent out hundreds of them to various parts of the States and Canada. I fruited it in Cleveland, Ohio, March 20, 1857, when the "Plain Dealer" in a notice of that date said of it, "it has a leaf as large as a lady's apron, and resembles one worn until it has many rips, slits, cuts and long tears in it. For short it is called the skeleton horse," from its supposed resemblance to equine anatomy. At Mr. Barnes' I saw some immense specimens fruiting in a Victoria Regia house, and at Mr. Aspinwall's country seat near Tarrytown, N.Y.,

and I think at Mr. Van Voorst's, of Jersey City. But a few years ago, at the princely residence of the late Mr. Dundass, of Philadelphia, whose unrivalled collections of stove and greenhouse plants attracted admirers from all parts of the country, were a number of large Philodendrons in fruit, and which his courteous and accomplished gardener, Mr. J. Pollock, took pleasure in giving a tase of to the many visitors who enjoyed the rare treat of an inspection of the extensive ranges of glass structures, which were then in all their glory, but are sadly neglected now. How sad it is to think that a just appreciation of the wonders and beauties of the vegetable kingdom cannot be transmitted to posterity with the money bags, in "the last will and testament" of the departed benefactor who bequeaths his floral treasures, fondly hoping his survivor may live to take as much pleasure in their culture, and feel as happy as he did when in the sunshine of life. There is a feeling of regret comes over us whenever we see that lack of taste for the beauties of nature among those who have "great possessions," and ought to know and do better. I openly confess, it often makes me sin by coveting some of the surplus lucre for the sake of the good I think I should do with it.

The love of money is said to be the root of all evil, and no doubt it is so, but the evil root never did nor would grow with me, cultivate it as I would, it would not flourish as other roots do under my care. Should the aforesaid root ever begin to show signs of life, to bud and blossom into fructification, and who knows but it may, as did Jonah's gourd; then neither "Ceres," "Flora" nor "Pomona" will be left to languish neglected or forgotten, I ween.

SPLENDID NIGHT BLOOMING CEREUS.

FLOWER NOTES BY A. G., READING, PA

On the night of the 2d of July, 1872, a very fine plant owned by Miss Kitty Gehr, of this city. attracted many visitors by its magnificent display of 24 open flowers. This cactus is trained on a wide frame 7 or 8 feet high, winding in and about it like some great green snake. The plant is 10 years old and in full vigor. During the summer of 1870 its flowers numbered as high as 40. The buds do not always perfect, some dropping off when half grown.

This plant was not kept nearly or quite dry, as is often done in winter, but moist, and when growing and budding was watered freely. The owner said she had tried the drying off process, but her plant did not bloom. In winter it is kept quite warm in a sort of pit greenhouse The earth is made very rich and somewhat sandy.

As the plants of Miss Gehr are allowed luxuriant growth, on entering her greenhouse in winter time one seems transported to some tropical spot; her Poinsettia pulcherrima was 8 or 10 feet high, and covered with its gorgeous scarlet bracts. Huge Cactuses sent up their slender columns to the height of 12 and 14 feet. Geraniums, Fuchsias, &c., of like proportions made up the floral show. Miss Gehr says she has kept the Poinsettia in the cellar during the winter, and bloomed them in summer. If grown to a large size and treated thus, they would make splendid ornaments for a yard or lawn; the bracts even in smaller plants have reached the width of 18 inches. In greenhouses they are seldom seen in all their splendor, as the bracts are more useful for floral ornaments when smaller.

EDITORIAL.

OUR FOURTEENTH VOLUME.

Our work in issuing the *Gardener's Monthly* is chiefly one of love. Now love is a very pretty element of poetry, and it often accomplishes great things, but it does not always win. There is a certain historical character who was in love with the fair daughter of Isaac, and he worked for her seven long years, but neither love nor work gained its object then. Another came between him and his love. But he was not dismayed. He kept warm his affections and went to work again with a will, and by another seven years his task was done. Rachel was his own.

We set ourselves something of such a task fourteen years ago. We sought to gain the hand of a fairer than Rachel—Nature's sweet daughter Flora; and we went to work in the broad fields of her great protector, Horticulture, not

doubting that in seven years she would accord to us all the favor our best hopes desired. But the great war came between us. We did not reach the point in our suit we anticipated. We had to rest satisfied with our Leah; but we worked on, determined that at the end of another seven years Rachel—our Flora—should be ours.

And now the fourteen years has expired. This number closes that volume, and we cannot but feel gratified at the success which has attended our efforts. We found American gardening but little advanced beyond the strict lines of agriculture, so far as its periodical literature was concerned. The great Downing, it is true, had just struck a spark which was lighting up a wild desire for country life; but with his death the fire lost its glow, and it was felt that it would never burn as it might have done had he been spared to superintend his own work. No man can take up a thread another drops; and when he takes up the pen, he must be himself no matter how impersonal he tries to be. The great "We" of the editor may represent several persons in the making up of a paper, but individuality crops out for all. Thus we find in reviewing the past of our periodical literature that Hovey, J. Jay Smith, Barry, Mead, the Woodwards, Rand, Manning and Williams, have made their editoral impressions each, severally in his own sphere. We found a place unoccupied which we thought we might fill. We made no pretension to classic horticulture, but took up the task of working for simple gardening. We are conscious that we have not developed horticulture in the direction Downing would have done, nor perhaps much in the lines the other good names we have mentioned would have marked out for themselves; but we have done the best we could in our humble way, and we feel that our work has brought its full reward.

Fourteen years is a long time for one leading editor to direct a work like this. Many of our best correspondents, who were with us when we started, are either dead or have lost their interest in horticultural progress; and we sometimes wonder whether at the end of another seven years our own hand will be stayed. But we shall push on at any rate. We feel that now at least we have the confidence of the great gardening public of the new world. We propose to turn into no new path, but to continue on in the old one. If any of our readers have ever so small a garden, we advise with him how to dress and to keep it. If they have but one vine or one fig tree, we take our seat with him under the shade, as if he were the possessor of the lordliest orchard. If he have but one solitary pot in a third story garret, we listen to his story of it as cheerily as if another talk to us about his priceless collection of tropical plants. How we may well serve the body; how we may best aid the mind; how we may make every clot of earth and every leaf and every flower tell to us secrets of its inmost life,—this is our mission.

Thus the *Gardener's Monthly* enters on its new septennial, as it has passed its two last. It invites every one who believes he has learned aught of nature to contribute to its pages freely. There is no new fact too small to be worth recording. The best discoveries in science have often originated in very simple observations. But for a boy's kite we might not now have an Atlantic cable; and many of our best horticultural discoveries date from very small beginnings. The *Gardener's Monthly* has accomplished much, but thousands of things remain yet to be learned both in matter of practical culture as in garden art and pure horticultural science. With the continued aid of our kind correspondents we hope to develop some of them, and we look forward to our new start with the confidence that if we get through with the next seven years, they will be of as much aid to gardening as have been our two last.

OUR INDEX.

It has been our aim to make the *Gardener's Monthly* not only a vehicle of passing interest, but really as well as literally a *magazine* filled with matter which shall be of value for all time to come. For this purpose our items are well condensed, and are generally of a character which will always bear a reperusal. There is, of course, a great deal of mere opinion of but a temporary bearing,—but on the other hand are thousands of facts relating to hosts of subjects, which will always remain profitable to the student of gardening.

When we look at the immense index which we give in this number, we are surprised at the extent of our own work. We doubt whether our readers ever dreamed that we have referred to so many matters in twelve monthly numbers, yet so it is, and we hope to continue on in the same track. Good reader, when you are trying to get an additional subscription for the publisher to send with your own, show your friend the

index of the past volume. If he see nothing in all that long list of items that he thinks it would be worth two dollars a year to know, pass on to your next friend.

EDITORIAL NOTES

DOMESTIC.

Immediate Influence of Hybridization.—There has been much difference of opinion as to whether there is an influence on the fruit and seed, as well as the plant produced from the seed by cross fertilization of varieties. Some years ago people were pretty much of one mind,—the only influence was on the progeny. But the depreciation in the flavor of melons by having pumpkins growing near them is believed in by many, although no perceptible evidence of hybridization occurs in the progeny, and we have never felt that "flavor" could thus be mixed without some variation in other particulars, which ought to be seen if there were any real hybridization. Corn, however, seems good evidence. Here sweet corn will be found mixed with common, and gourd seed with yellow; all plainly evidencing an immediate result of cross fertilization on the grain of corn. Still there may be reasons why this is not good evidence. But a couple of years ago we received from Canada an apple in appearance with the seeds and granular pulp of the pear—direct evidence of the immediate effect of pollen, which cannot be overcome.

There may be, however, reasons why the corn appearances mislead. There are numerous variations in nature entirely independent of impregnation by pollen. No one believes that there was more than one form of *Zea mays* "in the beginning." The *second* variety, therefore, must of necessity have originated wholly independent of cross fertilization, as there was no other variety to cross with. "As it was in the beginning," it may be still, and the varying forms and colors of grains in the same ear, may be the result of a natural law of change independent of any cross mixture from another variety.

Of those who do not believe in the immediate effects of change is Mr. Jacob Moore, of Rochester. Our readers may remember an article from him last spring, in which he wrote that he sent us an ear of yellow corn, and prophesied that the progeny, if grown away from other kinds, would yield sugar corn. We raised fifty plants an eighth of a mile away from any other corn. But we found no sugar corn in any of the ears—all but one ear was the same little yellow flint corn which we planted. In this one ear, however, *were a couple of grains of white flint corn.* There can be no suspicion that hybridization directly or indirectly performed any part in this change. It is an act of innate evolution.

Small as this fact may seem, it has an important bearing on some of the great questions which are shaking the world. For instance the universal belief is that any one species or variety sprang from one parent. This is the belief both of the specialist and of the Darwinian. If a plant is found on the east side of Behring's Straits exactly the same as one on the west side, and it appear impossible to have been carried from one side to the other by any external agency, it is likely to be regarded as a proof that time was when the land was united in one piece. But the writer of this has shown in some of his botanical papers the great probability that there were many distinct "centers," where the same variety or species appeared, especially in the case of forms of blackberries; and this little incident of the white flint corn shows conclusively that this can appear in more than one center, and gives a greater probability to the general law.

Chickory—This plant seems to get pushed out as civilization advances. The roots are dried and used as a substitute for, or to be mixed with coffee. It was one time largely grown about Philadelphia, but when it was abandoned it became a weed almost as troublesome in some cases as the Canada thistle. Its pretty blue and white flowers are, however, a redeeming trait. Californians appear to be going into its culture heavily, judging by the following from one of the papers of that State:

Twenty barrels of ground Chickory arrived at Sacramento from Schreiber & Howell's ranch, near Florin, this week, the first of the season. This ranch and manufactory will turn out twenty barrels per day soon; this is the factory we spoke of so ne weeks since. We were shown, by one of the proprietors, samples of the Chickory raised, and measured from four and a half to five and a half feet long from crown to tip of root. The Chickory is grown in a sandy alluvial, and is usually plowed out, which cuts off the roots about two to two and a half feet long. The company will probably make about 30,000 pounds of the dried and purified Chickory this year, which is all engaged in San Francisco.

Laxton's New Peas.—Last season, while noticing the new peas of Mr. Laxton, we referred to

the high praise bestowed on them by the English press, and though they would probably prove acquisitions. It was well-known that varieties of peas which suited England did not necessarily do well here. Last season we had an opportunity of examining a few growing in this country, and we are now able to say that they proved excellent in every respect.

American Sumac.—It often seems disheartening to the editor to have to be repeatedly urging matters of public good with so little apparent benefit flowing from it. Yet, once in a while, he finds the good seed sprouting, and sometimes growing up to be a great and majestic tree. Thus, some years ago, we pointed out the astonishing fact that thousands of dollars were going to Europe for Sumac, when we had thousands of tons of as good material in every State Our efforts in favor of native Sumac were ably seconded by the New York Farmers' Club and the New York *Tribune*. The idea took root at once, until now the American Sumac trade has assumed such vast proportions that a "convention" has been called to discuss matters pertaining to the interest of Sumac gatherers and the trade generally. The Agricultural Department likes to tell people how it aided in the original introduction of the "Imppee" or Chinese sugar cane; a lesser light may be pardoned for thus referring to its agency in the Sumac cause.

Nurseries of C. H. Allen & Co., Kansas City, Mo.—The West is becoming great in more senses than one. Great nurseries are rising continually. The Kansas City *Journal of Commerce* speaks of the nurseries of C. H. Allen & Co., among the most promising in the West.

The Beauties of the Postage Law.—Whenever we can get a few hours to spare, we devote it to a study of the voluminous postage law. We expect to earn the title of "Professor" yet by our knowledge of this mysterious subject. We note that it says in

"SEC. 152. That if any mail matter on which by law the postage is required to be prepaid at the mailing office, shall, by inadvertence, reach the destination without such payment, double the prepaid charges shall be charged and collected on delivery."

This seems at least clear enough. In this case the less paid the better for us. If six cents be due and only three cents be prepaid, we pay double that prepaid or six cents; but if twelve cents be due and only three "prepaid," we still have to pay but "double the prepaid," or six cents. But there is another Section 151, which says:

"All mail matter deposited for mailing on which less than one full rate of postage has been paid, as required by law, shall be forwarded to its destination charged with unpaid rate, to be collected on delivery."

By this we are not to pay double, but only the "unpaid rate." As we said last month, if one post master does one thing and another something else, who is there but can forgive them?

Peach Tree Insects.—Often a mass of gum is found at the base of young peach trees, and small white worms are found in the bark beneath, which are the cause of the gummy exudation. They do not penetrate deep, and are not very injurious to the tree. The Department of Agriculture report says they are the larva of the *Mycetophila persica.*

Another Interpretation of the Post Office Laws.—The Section which most of us have seen limits packages to twelve ounces; but there must be some other one, if any can find time to read the voluminous law and find it, for the Commissioner of Agriculture says, in his report for September, packages "weighing two pounds" may go by mail.

The Manilla Hemp.—A correspondent of the Agricultural Department, in the Philippine Islands, gives an interesting account of this plant, which is a species of *Musa.* The stem is made up of dilated or swollen petioles, imperfectly joined together into a trunk. These petioles are termed "strips" by the correspondent, who says:

"The hemp plantain, called by the natives of the Philippine Islands abaca, is a species of the genus *Musa*, growing wild all over the islands. It yields a small, inedible fruit, in appearance like that of the ordinary plantain. The trees attain a height of 20 to 30 feet; grow wild, but are usually cultivated in groves, in which they are placed 3 to 4 feet apart The mode of cultivation is rude, consisting simply in keeping the groves free from weeds and noxious plants. At the age of three years the tree has attained its growth, and is fit to be cut down. After its fruit has ripened, the tree will not yield any hemp. It is the stock or trunk which furnishes the fiber. After this has been cut, there springs up from the same root a number of trees, at intervals of a few months, so that a well kept grove can be cut about twice a year. The tree is cut a few inches above the ground. These strips are sepa-

rated from each other after the trunk has been trimmed of its branches. The strips are from 2 to 4 inches wide, and from 5 to 10 feet in length, according to the length of the trunk. The strips are next sub-divided into narrower ones, and drawn by hand over a knife, the strip being pressed upon the knife by an underlying piece of hard wood, and the tension managed by a treadle. This operation cleans away from the fibers the watery and fleshy parts of the plant, and it only remains to dry the fiber in open air when it is ready for market. It is necessary to pass the strip over the knife twice or thrice before the fibres are left perfectly clean throughout the entire length. One man at the knife and one to cut down the trees, transport them, and separate the strips, will clean about 25 pounds a day, though this is rather above the average. From 150 to 200 trees are needed to produce the fibre one picul, (137½ pounds Spanish,) or 140 pounds English; 3,200 trees for one ton of 2,240 pounds.

When we consider the small amount of hemp which an Indian produces per day, about 12 pounds, we are astonished at the enormous quantities of it exported from the East, to England in particular, reaching many hundred thousand bales annually.

FOREIGN.

Flowering Asparagus.—The *Gardener's Chronicle* announces that a species with deliciously scented flowers has been introduced. The leaves are like some of the Acacias.

The *Hampton Court Grape Vine.*—It is said that this famous vine produced the past season its usual large crop, but the leaves are smaller than usual. Only one vine fills the whole house, and much of the success of this old fellow is attributed to this fact, as well as to another, namely, that the roots are very dry, and at the same time have the opportunity to dry by the ends of the fibrous roots from a rich cistern near by.

Names of Plants.—We read of a weeping milkmaid in an English garden, and came near sympathizing with the afflicted creature, when we discovered that it was the name of a Holly. Some of these names are affectionate and pathetic. Little-bo-peep, is no doubt a rollicking sort of an innocent Fuchsia,—and "Nimble Jack" ought to be a very early turnip. We don't believe much in names, however, but perhaps after all these fancies are better than the ten feet Latin names some people are so fond of.

Our New Postage Laws.—The *Gardener's Chronicle* recently had a paragraph commending the American Government for its 4 lb. postage law on plants and seeds, although an Englishman enjoys a 5 lb. privilege; what will it say when it learns we have gone back to 12 ozs. ?

Civil Service Reform.—Many believe that competitive examinations for official positions would be better than the appointing system. One would think it ought, but many of us who in our younger days went through the ordeal didn't think much of it, although at the time supposed that the "best man" must have won. In a recent examination for clerk to the Curator at the Kew Gardens, a very brilliant youth answered all the questions admirably, and took the position. It was found in practice he was nearly worthless; but having been well "crammed," he could talk well to the examiner.

The Value of New Plants.—Few of our readers have a full idea of the value of rare plants. At a public sale in England the *Journal of Horticulture* says:

"Mr. J. C. Stevens sold by auction on the 19th ult. an importation of Orchids. The highest prices realized were for Odontoglossum vexillarium *var.* giganteum, £8 8*s.*; Masdevallia chimæra, £7; Epidendrum imperator, £6 6*s.*; Cattleya gigas, £6 6*s.* There were 216 lots, and the total amount of the sale was about £500.

Fiction in Horticulture.—Some time since we pointed out the absurdity of the supposed origin of the Pope Willow at Twickenham, which was said to have come from an old hamper basket which was found along the Thames, and had come from the Mediterranean. Any one ought to know that no basket ever was made of the weeping willow. The *Journal of Horticulture* says:

The Willow which grew by the "waters of Babylon," and whereon the mournful children of Judah hung up their harps, was not, as Linnæus and others have supposed, the Salix babylonica. It is now thought to be a kind of Poplar, incapable of being grown even in the northern parts of Syria, and, therefore, not likely to be able to endure our climate. The ordinary Weeping Willow has been brought from China and Japan.

Crops in England.—In strange contrast the great abundance of our crops, the fruits of England are well nigh failures this season. The potato crop is also reported to be one of the greatest failures in many years.

Effects of Coal Gas on Plants.—Some of our readers will remember that in Philadelphia a few years ago a florist, Mr. Thos. Robertson, had his plants destroyed by gas escaping from the street mains. He applied to the city for damages, but judge and jury decided that coal gas would not injure plants. Since that time reports have been given of experiments by some learned Frenchman, who also decided that no injury resulted, and now it is said experiments have recently been made in Berlin, to ascertain the effect of coal gas upon the roots of trees exposed to its influence. Three trees were selected, two limes and a maple, and after seventy days the gas was cut off to see whether the trees which had become blasted would recover. One of the lime trees again put forth foliage, but exhibited evidences of ill health, while the remaining two trees were killed. That part of the earth which was compacted around the roots appeared to transmit most rapidly the poison of the gas.

We suppose no one who has had any unbiased experience in the matter but knows that coal gas will destroy plants in the manner stated. Those who have had no experience had better take care to guard against it.

OBITUARY.

REV. J. KNOX.

The horticultural community will receive with sadness the news of the sudden death of Mr. Knox, of Pittsburg, which occurred by apoplexy, on the 13th of November.

Mr. Knox was for many years a preacher in the Methodist denomination, Pittsburg, we believe being the last station at which he regularly served. Being in possession of a large tract of land at Pittsburg, and fond of horticulture, and at the same time a man of great energy and force of character, he entered largely into the grape excitement raised by Dr. Grant and Messrs. Thompson and Campbell with the Delaware; and Mr. Bull and others in the East with the Concord, and some fourteen or fifteen years ago erected houses for the extensive propagation of the native grape on his Pittsburg farm. But he was a man of far-seeing business capacity, and he well knew the importance of showing the public what could be done, as well as furnishing them with the material for doing it themselves. There was no subject on which in conversation with the writer Mr. Knox was more earnest in expatiating on than that in America it was of the highest importance that "horticultural missionaries" should not only "teach sound doctrine," but be themselves bright examples of the doctrines they taught. This we believe was the leading idea in the establishment of the Knox vineyard, the grapes from which soon became known for many a hundred miles.

But it is perhaps in strawberry culture that Mr. Knox's name will be the most inseperably connected. He was probably among the first,—if not to learn—at least to recognize the great profit to be had from raising very superior fruit. His plan of raising these was more elaborate than any which had been practiced by his cotemporaries. There was more labor and more expenditure; but the increased price and extended reputation which followed the fruit from the Knox nurseries, taught a lesson which fruit growers will not soon forget. This faculty of seeing profit where others could not, was a marked feature in Mr. Knox's character. In strawberries the Triomphe de Gand had been long in cultivation and had been, if not actually discarded, at least had not achieved a very high repute. Mr. Knox, not satisfied with what the "public" believed, experimented for himself, and found it the best of the large number he tried. Knox's immense Triomphe de Gands created enthusiasm everywhere; and to this day it stands higher with cultivators than it did before his experience with it, and higher than it probably ever would but for the great success he found in its culture. The Jucunda was another illustration of this peculiar character of our friend. Others had had this plant for some years, but they saw nothing. Knox was the first to detect its superiority to all,—and there were probably no strawberries in the world that could enter into competition with the Jucunda from the Knox fruit farm and nurseries. True, others did not always have the same success which he had, but as a general rule they were persons who did not approve of his mode of culture. He found it the greatest success. His grounds were always freely open to others to see the success, and he spoke and wrote only of what he *had done*.

And referring to his speaking, again reminds us of how much our Pomological societies will miss him. With a splendid voice and great oratorical gifts, he was always welcomed, and always valued. He generally confined himself to detailing what he *had done*, and though this necessarily savored to some of egotism, it was ra-

ther characteristic of the practical character of the man. But it is not for us to enter into any weak point of Mr. Knox's character. We, all of us, have of these enough and to spare. The benefits he conferred on horticulture by his great business energy and perseverance, we are all too glad to remember. The thousands who now enjoy so cheaply the fruit of the vine, and the delicious spring fruit, the strawberry, will ever hold his name in grateful remembrance. He will need no monument to commemorate his memory. As the "strawberry king" we do not anticipate there will be very soon a successor; and it will be impossible for any American history of fruit growing ever to be compiled or written without a reference to Jeremiah Knox.

SCRAPS AND QUERIES.

RAISING MAGNOLIAS.—*D. S. M., Bridgeville, Del.*, asks: "Can any of your correspondents inform me how to start seeds of the common Magnolias that grows wild in the Delaware swamps, soil to plant them in, and also how to start seeds of the M. grandiflora? Can the M. Soulangeana be budded on the common swamp Magnolia?"

NAME OF PLANT.—*Mrs. McM., Mankato, Minn.*, wrote some time ago as follows, which we have held in order to inquire for her what the plant may probably be. It is most likely to be the white African Lily, *Agapanthus umbellatus*:

"Two years ago I sent to Henry A. Dreer, of Phila., for a plant, the *Valotta purpurea superba*, for which I paid $1.00; it was marked as the above name, and described as a scarlet Lily-like flower. After keeping it until now it has bloomed, and I want to know what it is. It has a stalk 18 inches high, around the top are 56 white flowers, resembling tuberoses, without smell. The root is immense, completely filling a 10 inch pot; it has never had a slip or tuber on it. The leaf resembles an Amaryllis, (which I suppose it is) but never having seen one in bloom would like to know if it is, and if so, how it is propagated; it is beautiful.

FIBRE OF THE SPORABOLUS.—*H. C. B., Painesville, O.*, writes: "I sent sample of the fibre of Sporabolus cryptandrus to Mr. Saunders of Washington, by whom it was submitted to examination by the Chemist of the Department. I append a copy of his report.

"WASHINGTON, D. C., *Oct.* 24, 1872.

The fibre of the Sporabolus cryptandrus, submitted to examination in the laboratory, contained 1,947 per cent. of inorganic matter; the remainder (98,053) being pure celluline or woody fibre. It has the properties of an excellent material for paper, and probably a good substitute for hemp in the manufacture of cordage.

RYLAND T. BROWN, *Chemist.*"

The only doubts I entertain in regard to the practical value of this fibre, arise from fears that it cannot be produced in large quantities."

[The paper maker to whom we referred the specimens sent last month, reports that for cordage he would regard it as superior, but has his doubts about its extra value in paper manufacture.]

MILDEW ON PEACH TREES.—*S. R. B., Phila.*, writes: "Can you tell me what causes mildew on peaches that are otherwise healthy and good? Would it benefit them to thin the surrounding leaves? I have two peach trees growing vigorously in a town yard since 1870, when they were removed from the country, where one of them stood more than 20 years without bearing; but these two past summers they have produced much more fruit than it was safe to allow to ripen; they have made rank wood and very thick foliage. I shall be much gratified by an answer through your valuable magazine, and hope some remedy may be suggested."

[We have an article with illustrations by Mr. Taylor in another column, which will throw some light on this subject.]

THE MISSION OF HORTICULTURAL JOURNALS. A Kansas correspondent says: "I have never been a regular subscriber to the *Gardener's Monthly*, but shall be with the commencement of the new year. The West sadly needs a pomological magazine, and it is sad to think that

no enterprise of this kind has ever been a success. The West is concerned in tree culture, orchards and cheap flower culture, and has little time for anything else."

[We are afraid the failure of the Western papers referred to by our correspondent has been from the want of perception of the true mission of a horticultural magazine. In regard to the matters named there could be no better papers than *Colman's Rural World* of St. Louis, the *Kansas Farmer* of Leavenworth, the *Michigan Farmer* of Detroit, the *Homestead* of Des Moines, Iowa, the *Michigan Farmer* of Madison, and the *Prairie Farmer* and *Western Rural* of Chicago. All these and some more newer and less widely known ones, have departments which give considerable prominence to what might be termed the agricultural phases of horticulture. They manage these departments, as a general thing, so intelligently, that there seems really no room for a horticultural paper of this border line class. For there is a line between horticulture and agriculture, although not an exact one,—a sort of a twilight between day and night. Horticulture starts rather from a mental pleasure *down* to meet the profitable ones; while agriculture commences rather with the stern wants and necessities of life, and *advances upwards* to meet the pleasures and refinements of gardening. While therefore the agricultural and horticultural papers must necessarily find much in common when they approach the boundary line, their main missions are essentially distinct. The unfortunate papers of the West our correspondent refers to have none of them appreciated this distinction. Though called horticultural or pomological, they were essentially agricultural, and with no distinctive features beyond what the regular agricultural papers exhibited. There never was a ghost of a chance for a long continued separate existence.]

VARIATION IN A HYDRANGEA.—*W. C. S., Keokuk, Iowa*, writes: "I have a 'Hydrangea' having every appearance of 'Hortensia' in leaf and bloom, with the exception that it has a number of florets around the main blooms similar to the 'Hen and Chickens Daisy.' Is it a known variety or is it a sport?"

[Not a known variety, probably a sport. If this branch were propagated from it would probably always retain this character. This is how many of these peculiar sports are perpetuated. Generally the Hydrangea is best propagated by the half ripened wood. Cuttings made at this season seldom do well. Perhaps the best plan will be to wait for growth next year before attempting the propagation.]

POST OFFICE MATTER.—*B.*, writes: "Thanks for your ventilation of the Post Office question. No one knows what an immense amount of annoyance, trouble and vexation which those of us who have heavy business with the office often have to endure, and which I verily believe would not be tolerated by any other country in the globe. Recently I had a letter returned to me, directed to a number and full address in your city of Philadelphia, and it was returned to me as 'not being found' at that number and street, when my correspondent is there and has been for years. But what I would like to know now is, what is the object of the stamping of letters? The matter is brought thus before me by a correspondent who has signed nothing but his name; on referring to the post office mark I find that is illegible. Half the letters I get are in this condition. As there appears to be no use in these post office marks as they are, what purpose are they intended to serve?"

[We fear our correspondents are bent on discovering how much of an ignoramus the editor is. We have no doubt there is some hidden meaning to these illegible marks. It may be to frighten thieves, who, like all the rest of mankind, always have a dread of what they do not understand.]

BLACK'S EARLY PEACH.—A correspondent asks us what we know of this and where to get it. We never heard of such a peach. There is a worthy fellow in the peach business at Hightstown, N. J., named Black; if any one knows anything of such a peach, we suppose he ought to be the man.

BEGONIAS.—*W. J. H., Sandusky, O.*, writes: "Will you please answer through the columns of the *Gardeners' Monthly* for next month, the proper way to cultivate Begonias. I have one that is a large plant, and it has not bloomed since early last fall, one year ago; keeps growing, but has no buds. In looking over your magazine I find in 1860 you had such an article, but the number that contained it is missing. I trouble you therefore for the information, and you will oblige."

[Some Begonias do not flower freely unles-

they have abundance of light, and others if they are too richly grown. The Herbaceous Begonias flower better than most others in partial shade, but these are usually grown for the beauty of their leaves, and flowers are of secondary consequence. The upright woody Begonias, if grown in a tolerably rich soil, not too much overpotted, and kept growing in a temperature of about 50°, and in a tolerably light place, usually flower freely.]

NEW POST OFFICE DECISION.—The postal law says "mailable matter of the third class shall consist of ——— prints, engravings—seeds, plants," and so on, "not exceeding twelve ounces in weight." The Postmaster General has decided that this "does not mean" prints, engravings, and has given permission that these may go in four lb. packages henceforth. The picture trade has got ahead of the seed trade. Cannot this great industry also succeed in showing the Postmaster that it does not mean seeds or plants, any more than pictures.

KEEPING PLANTS OVER WINTER.—*J. G., Ypsilanti, Mich.*, writes: "I have the following plants:

Salvia Gardenii.
" splendens variegata.
" patens.
" coccinea.
Lobelias Sunset Cinderalla.
Alternantheras.
Lantanas.
Centaurea gymnocarpa.
Cerastium tomentosum.
Artemesia stellaris.

I wish to know

1. Which (if any) of these I can keep over winter for use next year?

2. How they should be kept (parlor, cellar, cold frame)?

3. How they can be propagated (cuttings or otherwise)?

4. When it is best to propagate them?"

[The above letter became misplaced, or it would have received earlier attention. It is now too late for the replies to be of much service to our correspondent. He will please consider that he has a claim on us for "any number" of queries during the next year for the accident. So far as the preserving the plants are concerned, however, there is not much lost by the delay, as as it is far best of most of these things, to have new plants every year. The Cerastium is hardy and will come up again next season. The Salvia patens root is dug up and saved like a Dahlia.]

BORERS IN EVERGREENS.—*W. H., Louisville, Ky.* Any number of borers affect living evergreens. The larva of a large, long-horned beetle, *Monohammus titillator*, is the worst enemy to the White Pine, and frequently bores its way out after the wood is made up into beams and pillars. Another Cerambycid larva is death to red cedars here in the west, while a host of bark borers affect all kinds of evergreens.—C. V. R.

NEW AND RARE PLANTS.

CALLICARPA PURPUREA.—This has been a fine season for this shrub. It was figured in the second volume of the *Gardeners' Monthly*, but is yet but little known. The plant grows into a thick bush about two or three feet high, and the flowers are borne in the axils of the leaves in pine. They are small and of a delicate pink color, but numerous enough to be quite attractive. Small berries about the size of small red currants appear after flowering, which in September change to a pearly violet color, continuing to attract attention till severe frost destroys them.

SALVIA TARAXACIFOLIA.—A native of the lower slopes of the Greater Atlas, and discovered there by M. Balansa in 1867. It has been seen by Dr. Hooker growing in broad patches along the base of the Great Atlas, and presenting a very beautiful appearance. Calyx half an inch long, tubular-campanulate; tube densely appressed, tomentose, and clothed with spreading hairs; lips nearly straight, upper three, lower two-lobed. Corolla nearly twice as long as the calyx, pale pink, with a yellowish disk to the lower lip, and purple-speckled prominent

pilose palate; tube ventricose, villous near the faux and on the short galeate compressed upper lip; and with a ring of brown hairs near the base within.—*Botanical Magazine.*

LACHENALIA TRICOLOR.—L. tricolor, according to Mr. Baker's determination, is a very variable plant, and includes as forms L. quadricolor, L. luteola, *Jacq.*, and L. aurea, *Lindl.*, of which the last, that now figured, is by far the most elegant, and is further remarkable for its bright color and the waxy texture of its flower. It flowered in the Royal Gardens, Kew, in March of the present year from bulbs. Leaves dark green, uniformly colored, or speckled or spotted with darker spots. Scape 6 to 10 inches high, reddish, variegated with darker red or purple. Perianth golden yellow, waxy, 1 inch long, tubular; base rounded, rather gibbous; outer segments connate to or below the middle, obtuse, with a gibbous dorsal boss below the tip; inner almost twice as long as the outer, pale yellow, spathulate, slightly spreading; tip rounded or obtuse.—*Botanical Magazine.*

NEW GLADIOLUS.—A correspondent of *Journal of Horticulture* says: I will now make a few remarks on the new varieties of this season sent out by M. Souchet. From what I have seen here and elsewhere, there is but little new or good amongst them; indeed some of them are merely repetitions of the old sorts. Beatrix is a good white flower, and specially noticed by the Rev. H. H. Dombrain as being very fine in my stand at the Crystal Palace, but if I had labeled it Norma no one would have known the difference; and the spike of Beatrix was not nearly so good as that of Norma exhibited by Mr. Dombrain at South Kensington the previous week. Minerve is similar to Phidias. I plucked a single flower from each variety, and placed them together, and could not say which was the one and which the other. Virginalis, again, is rather paler than Mary Stuart, and much like it, but does not produce such a long handsome spike. Jupiter is new in color—a fiery crimson—and if the spikes are not large, the flowers are, and it is an acquisition. Phœbus, Mr. Dombrain has spoken highly of. I have not seen it yet, but a spike exhibited by him at South Kensington did not seem to be honored with a certificate. M. Souchet has sent out in former years many splendid varieties, and we owe him many thanks for them. I hope that those put in commerce from his establishment next season will maintain his reputation; the present batch has signally failed to do so.

AT THE LYONS HORTICULTURAL EXHIBITION, which was opened on the 1st of August of this year, there was shown two Robinias, one by the firm of MM. Durousset, and the other by that of M. Morel. They are both said to be evergreen, and if this be true, will prove valuable acquisitions for purposes of ornamentation.

NEW ORNAMENTAL CHERRY.—A remarkable sport of the May Duke Cherry has been produced in the grounds of M. Ferninand Messange, of Baillonville. The leaves become narrow at the end, so as to resemble those of the peach, or even the willow. Some are 8 inches in length and an inch in width; others are 4 inches in length, and about the third of an inch in breadth. —*Belgique Horticole.*

DOMESTIC INTELLIGENCE.

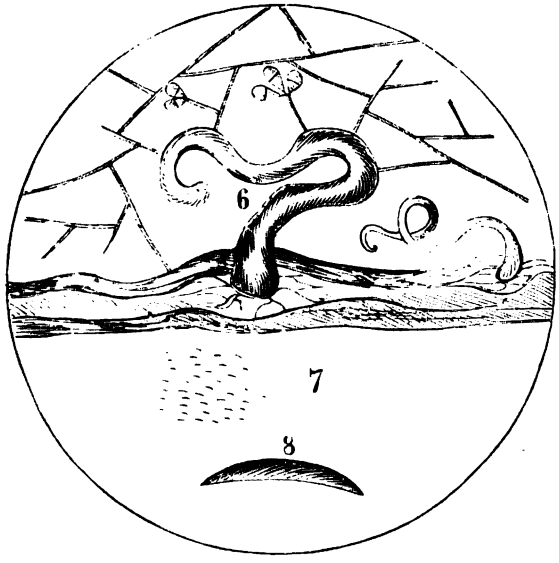
YELLOWS OF THE PEACH.—On the 1st of July last I commenced a series of experiments by the moist process with the bark of a peach tree affected with the yellows. Into five glass receivers I placed, respectively, a few drops of water, just sufficient to form a moist atmosphere in each. Into No. 1 I put a piece of bark affected with the yellows; into No. 2 a piece of bark from a healthy peach tree; into No. 3 a handful of peach leaves from the unhealthy tree; into No. 4 a similar quantity from the healthy tree; and into No. 5 portions of bark from the healthy and unhealthy trees mentioned. All the specimens were secured from outward atmosphere. The temperature of the room in which the specimens were kept was frequently at 90° Fahrenheit. These conditions were highly favorable to the development of such fungi-germs as mature un-

der excess of heat and moisture. Previous to arranging the specimens in the receivers they were examined minutely with a low power, but no signs of fungi were visible. On the 15th day the unhealthy specimens in Nos. 1 and 5 exhibited on their external surface a spotted appearance. When viewed by a power of 75 diameters they were seen to consist mostly of a translucent, yellowish-brown, spiral, thread-like fungus known as *Nœmaspora*.

Plate 15, figures 1, 2, 3, and 4, represents the first stages of this fungus. When a portion, about 0.3ths of an inch is placed under an object glass of one inch, and secured in the usual manner by means of a disk, with dilute gum-water, the spiral forms are seen to dissolve gradually, and ultimately to form a yellowish stain. On viewing it with a power of one-eighth, it appears to be a mass of curved spores, resembling in form caraway seeds, but invisible to the naked eye. Each spore has a life-like motion confined to the centre of its own. When they are treated to the action of nitric, muriatic, and nitro-muriatic acids, no immediate change is observable; and in those strong acids the life-like motion continues, which, I think, proves that the motions are not the result of any form of organic life, but simply what is known as "Brownian motion," which is frequently seen when minute

PLATE 15.

PLATE 16.



particles of inorganic matters are placed under a high power. When the spores are combined either with concentrated sulphuric acid or caustic potash they become completely destroyed, forming a homogeneous mass, and their organic structure is no longer visible.

Plate 16 represents a sectional view of the bark. Figure 6, *Nœmaspora;* 7, the same, when placed in water or acid, except sulphuric; 8, a very highly magnified form of the spores contained in Fig. 6.

About the 20th day mycelium was found in abundance growing from the spiral threads, (see Fig. 5,) resembling double-celled *Puccinia*, the spores, varying in number from 1 to 10, and so small that a power of one-eighth was required to give good definition. Since contact with water dissolves *Nœmaspora* without destroying the life of the spores, it is evident that the action of rain or washes of pure water will only tend to diffuse the spores over the body of the tree and roots, while the application of solutions of sulphuric acid and alkalies will destroy them. Hence a remedy may be found for peach-yellows in the application of alkalies and sulphates, and their compounds, to the bark and roots of the trees. Statements have frequently been made that the application of hot lye has been known to cure peach-yellows when applied to the bark and roots. My own observations seem to confirm these common rumors.

In receiver No. 5 the healthy bark was not contaminated, seemingly, with the *Nœmaspora*, notwithstanding its immediate contact during several weeks with the unhealthy bark. As might be expected, the common molds, *Penicillium*, and *Mucors*, grew all over the surface of the specimens, healthy and unhealthy. The leaves in Nos. 3 and 4 were next examined. They had been subjected to the same treatment as the bark. The healthy leaves, although confined during four weeks in a moist atmosphere, at a temperature ranging from 80° to 90°, exhibited no signs of mildew. A split branch to which the leaves were attached exhibited a small portion of *Mucor* fruit, and *Mycelium* on the sap-wood and pith; but the unhealthy leaves were completely covered in two weeks with *Mycelium*, (mold,) and the fruit of the common blue, yellow, and black *Penicillium* and *Mucors*. I have repeated these experiments several times, always with the same results. It is evident that the healthy leaves possess an antiseptic substance, which prevents the growth of common molds on them. A portion of healthy and unhealthy leaves from the trees above mentioned was analyzed in the laboratory to determine the respective amounts of moisture, organic matter, and ash in them, and gave the following results:

Healthy peach leaves:

Moisture,	29.20
Organic matter,	63.22
Ash,	7 58
	100.00

Unhealthy leaves:

Moisture,	36.9
Organic matter,	59.4
Ash,	3.7
	100.0

The fact of the absence of ash or solid matter and of the increase of moisture in the unhealthy leaves, would of itself account for their greater tendency to mold. Since leaves do not absorb earthy matters from the atmosphere, it is evident that the cellular structure of the tree has in some way failed to perform its functions; for, had the ascending sap carried with it potash, lime, or other earthy matter, the leaves would have been stored with them, since the leaves have no power to evaporate them. The deficiency of earthy matters in the leaves may also account for the absence of ash in the fruit. If the theory is well founded that the leaves elaborate juice for the growth of the fruit, the leaves being deprived of proper nourishment, the fruit cannot mature. It has been long observed that trees affected with the yellows fruit earlier and mature permaturely, and soon decay. The presence of a larger amount of sap in the unhealthy than in the healthy, indicates an earlier and greater flow than in that of the healthy tree. The presence of watery sap in the leaves, twigs, and buds would induce naturally an early growth of fruit and premature decay. From these and other observations the disease seems traceable to the body of the tree or roots. Applications of washes in this case to the leaves would probably prove useless, but if applied to the bark and roots, might prove curative; and for that purpose, judging from microscopic observations, I would recommend the frequent application of hot lye as the best substance.—THOMAS TAYLOR, Microscopist to the *Department of Agriculture.*

[By the kindness of the Hon. Commissioner of Agriculture we have been allowed the use of the cuts to illustrate this article.—ED. *G. M.*]

FRANK LESLIE'S COUNTRY-SEAT.—Respecting improvements at Saratoga Lake and a magnificent villa residence now being prepared for a well known New Yorker, the *Saratogian* says: "There are few more delightful places for a summer residence than the shores of our charming Lake Saratoga, and Frank Leslie, with an eye to the picturesque and elegant, has occupied and possessed himself of one of the finest sites thereon for his long contemplated summer establishment. His 'domain' includes about sixty acres, extending from the west shore of Saratoga Lake, half a mile this side. On these palatial grounds it is Mr. Leslie's purpose to rear a handsome residence. The grounds themselves will be laid out in accordance with the best taste, in landscapes, gardens, walks and drives. Already some two miles of drives have been laid out by surveyor Cramer, and the contract for constructing the same, amounting to several thousand dollars, awarded to Mr. P. P. Robbins, of this village. Work on them has commenced, and they will be finished as rapidly as possible. The drives extend from lake to lake. Some portion of them, on the lake shore, has already been completed. Mr. Robbins has also taken the contract for constructing about six hundred feet of dock on the Saratoga Lake front, both for convenience and to protect the bank.

FOREIGN CORRESPONDENCE.

HORTICULTURAL OBSERVATIONS IN ENGLAND.

One of the best exhibitions of the season in these parts was held at Plymouth, September 3, thirty miles from here. Passed through Lotness on the way, a very ancient place on the river Dart. According to history, it was a place of trade with the Phœnecians before the Christian era; they came up the river from Dartmouth to purchase tin, which was obtained on the moors near by. There are the remains of an ancient castle here, from the summit of the battlements a very extensive and interesting view is obtained of the town and surrounding country. The exhibition was held out of doors in tents, or one large tent, 180 feet long and 60 feet wide, on a beautiful spot called the "Hoe." This is a park or public promenade running right down to the bay or sound, and elevated 100 feet or more above it, and affords a very commanding, extensive and picturesque view of the sound and coast. On the right is the noble park and grounds of Earl Edgcumbe, which are open to the visitors on certain days during summer; on the left, the bold sandstone cliffs, and right facing you is the celebrated breakwater, 1000 yards long with two arms 350 yards running diagonally towards the shore; also "Drake's Island," which reminds me of Governor's Island in New York harbor. In the distance, 14 miles away, and which can be distinctly seen on a clear day, is Eddystone Lighthouse.

The chief competitors at the show were Messrs. Veitch and Luccombe and Pince & Co., of Exeter.

In the Veitch collection the most noticeable were Statice Holfordii, a splendid plant four feet high, with about 20 large panicles, also S. profusa, Crowea Saligna stricta, Vallota purpurea; one bulb with seven thick flowers stems, and each truss containing about ten flowers. A fine specimen of Cattleya Mossiæ, Allamanda nobilis on balloon trellis, fine; Ixora amboyensis, Æschynanthus grandiflorus on trellis, three feet high; Aphelexis prolifera five feet high and three feet through, Ananasia Barnesii, Dipladenia amabilis on balloon trellis, a beauty; an immense plant of Croton variegata, do. C. Weismannii, do. C. undulata, do. C. interrupta, do. C. irregulare. The Dracæna genus contained D. magnifica, do. Mooreana, do. Gilfoylii, Maranta Veitchii and tubispatha, Anthurium Scherzerianum.

Conspicuous in the Luccombe and Pince collection were the following: Erionema marmorata, Maranta tubispatha, M. illustrious, Retinospora Lycopodoides variegata nana, Primula Japonica, Phormium tenax variegata, Sansevieria Javanica (five feet); Ferns, fine specimens of Adiantum concinnum, Farleyensis, Todæa superba, Trichomanes radicans, &c., &c. Pandanus Veitchii. (fine for baskets or vases,) Ænectochilus intermedia, do. argentea picta, and various other good plants. These two collections would have made the eyes of our old friend and prince of plant growers, Mr. L. Menand, dance with delight, could he have seen them.

Mr. Serpell, of Plymouth, also—who has a fine nursery here—staged quite a number of good plants. On his table were some fine Dahlias, the best Peri, Mephistophels, Criterion, Monarch, (splendid dark,) Golden drop and others, Erica cerinthoides coronata, Phœnix reclinata, Dalechampia Rœzliana, Æleagnus Japonica, Lilium album marginata, and Wilsoniana, new, also a splendid brace of cucumbers, (Marquis of Lorne,) 28 inches.

The day being beautiful, also a yacht race in the bay, with two bands of music from the barracks, it was quite a treat to witness it, and be here, irrespective of the exhibition, as there are many historical associations connected with this place.

On the "Hoe," where the show was held, (so saith the chronicler,) on the 20th of July, 1588, Sir Francis Drake was playing bowls when the news arrived of the appearance of the "Invincible Spanish Armada" off the coast; with 120 vessels they were attacked and repulsed near the Isle of Wight.

We had a sharp frost here on the 23d of September, which cut the Dahlias, Heliotropes, scarlet Runners, &c., in the low ground; since then the weather has been delightful, thermometer ranging between 45° and 60°. J. W. W.

FOREIGN INTELLIGENCE.

EARLY WINTER.—Not only have the Fens near Howgin, in Westmoreland, and the Carnarvonshire mountains, been covered with snow a week since—in some places it was 4 inches deep—but in the neighborhood of Blandford, in Dorsetshire, we know that the frosts have been sufficiently severe to form ice. At Luton Hoo 5° below freezing has been registered, and even near London Coleuses and some of the more tender flower garden plants have had their beauty destroyed.

OREGON CEDAR.—(Thuja gigantea) which is generally diffused throughout the Washington territory, grows to an immense size, being often from 12 to 15 feet in diameter. Its trunk is often straight and branchless for 20 feet, but the top is so knotty as to be of scarcely any value. In lightness, softness, and durability its wood excels any other, but is deficient in strength and elasticity. It is used chiefly for shingles, rails, and fine inside finishing. For most purposes for which the red wood of California (Sequoia sempervirens) is used it is superior, and is therefore much exported from the Washington terri- A backwoadsman can in a few days, with his axe, make for himself a comfortable cabin from one of these Cedars, as it can be split into timbers and boards with the greatest ease. This fact has long been known to the Indians, who used to split it with stone hatchets and wedges of the Crab apple (Pyrus rivularis). They also make from its trunk their celebrated canoes, which are more lighter and more elegant than any save those of Birch bark, used farther north. The wood is wonderfully durable. The thin bark, which comes off in long ribbon-like strings, is manufactured by the Indians into bags and articles of dress, and has been suggested as suitable for employment in paper-making.

A NEW WHITE RADISH.—In the *Garden* for December 16th, Mr. William Robinson supplies some further information about the new white Radish, to which I made reference in my last letter; and I give it because it is of an interesting character. It is to this effect: "The fact that some imperfect specimens of this have received a first-class certificate from the Royal Horticultural Society justifies some allusion to it. It was when walking through the Chinese quarter of San Francisco, in the beginning of November, 1870, that I first saw it. Among the various vegetable products that were exhibited outside the Chinese shops, was what seemed to be a peculiarly tender looking white turnip, with a skin as smooth as glass, and pure white. The roots were cylindrical in outline, but usually rather neatly rounded at the ends, somewhat like a cucumber; and they were from eight to twelve inches long, and from two and a half to three and a half inches in diameter. Certain that it was a distinct and excellent variety of turnip, I made some inquiries as to the variety, and learnt that it was a radish. But surely a radish of suce size must be a tough subject in the centre! On the contrary, the largest specimens were found to be as tender throughout as a well-grown young summer turnip. I afterwards visited the gardens where these radishes were produced, and found them grown and thoroughly well-grown too, in beds about four feet wide, with a narrow alley between. The plants, arranged in lines, had abundant room to grow, and seemed to have thriven unchecked in the sandy soil, kept well moistened and enriched by the Chinese gardeners. The culture seemed to me remarkably like what one sees in a good market garden at Paris; the only difference I saw being that, between every two lines of plants there was a little hollow scooped out, and in this a small drill of half-decomposed manure was placed. Specimens bought in the Chinese market, at San Francisco, and brought to London with other seeds and roots, maintained their freshness and good flavor for many weeks. They were shown to some of the most experienced seedsmen and growers in London, not one of whom ever suspected they had anything to do with a radish, though they employed the tongue as well as the eye test. Where these radishes are grown so well, the winter climate is much like that of our early autumn, so they do not suffer from cold. The tops of the specimens shown at South Kensington were dead from frost. The plant must, of course, receive the treatment of an autumn and winter radish, and be sown in rich, light, and warm soil. In the colder parts of the country, it might be desirable to place some plants in positions where they could be readily covered by a Ground Vinery; or some such protection, so as to prevent their being checked or destroyed by autumnal frosts. If it prove distinct, it will doubtless be an acquisition."

ILLUSTRATIONS.

Colored Plate, Frontispiece ..... Blood Leaved Peach.
" " June ..... Grimes' Golden Apple.

A

Academy of Natural Sciences, Philadelphia, New Building of. 219
Adiantum Farleyense 89

B

Boiler and Pipes for Greenhouses, Arrangement of 263
Brown's Wonder Strawberry 281

F

Fungi-Germs magnified to 75 Diameters 375

H

Heating Apparatus for Greenhouses 263
Hot Water Circulation, (Diagrams) 328-329

L

Layering 214-267

INDEX VOLUME XIV.

A

Abies Firma, 94
" Orientalis, 94
" Picea, the German name of, 135
Acacia Acuminata, 108
" Decurrens, 108
" Homadophylla, 108
" Melanoxylon, 108
Academy of Natural Sciences of Phila., 96, 224, 352
Acer Campestre, 109
" Colchicum rubrum, 178, 295
" Dasycarpum, 109
" Macrophyllum, 109
" Negundo, 109
" Palmatum, 109
" Platanoides, 109
" Pseudo platanus, 109
" Rubrum, 109
" Saccharinum, 109
Address of President Hoopes, 40, 75
Adiantum Capillus-Veneris Daphnites, 316
" Farleyense, 89
Æchmea Mariæ Reginæ, 222
Æsculus Hippocastanum, 109
Æsthetics, Railroad, 300
Aged Trees, 30
Agricultural College, Mass., Ninth Annual Report of the Trustees of, 220
" Department, The Botanist of, 20
" and Mechanical Association, West Alabama, 256
" Paper, An, 20
" Society, Franklin & Hampden, Mass., Transactions of, 219
" " Plymouth, Mass., Transactions of the, 278
" " Wisconsin State, 288
Ailanthus Glandulosa, 109
Alexander Peach, 347
Alyce Rhodiceæ, 220
Alnus Glutinosa, 109
Alocasia Marshalli, 317
Altar, Flowers of the, 61
Amaryllis, 235
" and other matters, Note on, 301
American Aspen, The, 30
" Entomologist, The, 23
" Institute Fair, N. Y City, 256
" Pomological Society, 220
" Raised Arborvitæ, Hardiness of, 153
Ammonia, Influence of on the Color of Flowers, 156
Amyris Terebynthifolia, 110
Andromedas, 197
Angophora Intermedia, 110
Animal Life, Vegetable and, 70
Apple Borer, 247
" Brier's Sweet Crab, 58
" Cadwalader's Golden, 120
" Cooper's Red, 121
" Grimes' Golden, 183
" Gully, 59
" Halley, The, 346
" Hockett's Sweet, 315
" Lanier, 28
" Lawver, 58
" Lincoln Sweet, 315
" Mason Pippin, 59
" Mercer, 121
" Primate, 274
" Seedling, 282
" Seeds Sold for Pear, 24
" Smith's Favorite, 28
" Soulard and Soulard Crab, The, 89
" " Crab, 28
" Stocks for Cordon Training, 115
" Tree, a Pear Fruit from, 343
" Waldridge, in Wisconsin, 58
" Worm, Parasite on the, 140
Apples, Sweet Rhode Island Greening, 23
" Names of, 309
Araucaria Bidwilli, 5
" Braziliensis, 5
" Cookii, 5
" Cunninghami, 5
" Excelsa, 5
" Imbricata, 5
" " at Bicton, 160
Arboricultural Society, Kansas, 127
Arborvitæ, Hardiness of American raised, 153
Arisema Ringens, 156
Artichoke, Jerusalem, 147
Art of Beautifying Suburban Home Grounds of Small Extent, 24
Ash Leaved Maple, Sugar from the, 117
Asparagus Culture, 325
" Cutting back, 247
" Dioecism in, 274
" Large, 179
" Male, 344
" Repeated Cutting back of, 217
" Salt for, 179
Aspen, The American, 30
Atlantic & Richmond Peaches, The, 347
Australia, Queensland, Rambles in, 260
" Victoria, Recollections of a Journey from Melbourne to Geelong, 10
Autumn Flowering of the Horse Chestnut, 310
Azaleas and Rhododendrons at Bloomsdale, 311
" Hardy, 197

B

Baloghia Lucida, 110
Baltimore, Annual Report Park Commissioners of, 220
Bark Louse, The Oyster Shell, 331
Parleria Dichtoma, 317
" Mackenii, 317
Bean, Canadian Wonder, 120
Beans, Lima, without Poles, 156
" Mexican, 160
Bedding Plants, 308, 341
" " Summer, 309
Beet Sugar in Colorado, 143
Beets, Quantity of, the Acre, 153
Begonia Carminata, 318
" Hybrid Multiflora, 216, 249, 264
Begonias, 254, 372
Berberis Aquifolium leaves for Bouquets, 349
Best Strawberry, The, 150
Betula Alba, 110
" Linto, 110
" Nigra, 110
" Papyracea, 110
Binding the Monthly, 55
Blackberry, Ford's Hoosic Thornless, 282
" Western Triumph, 315
Black's Early Peach, 280, 372
Black Walnut, the Small Fruited, 157
Blight, Fire, 86
Blodgett's Late Peach, 347
Blood Leaved Peach, 316
Blooming in Winter, Plants for, 85
Blue Color of the Sky, Influence of, on Animal and Vegetable Life, 220
Blue Glass, 143
Boiler and Heating Pipes for Greenhouses, Arrangement of, 132
Boilers, Hitching's, Cost of, 302
Borer, Apple, 247
" How to Expel the, 297
Borers on Evergreens, 344, 373
Botanical Classification, 153
Botanist of the Agricultural Department, The, 20, 179
Botany in New York, 179
Bottling Grapes, 187
Bouvardia, New Pink, 55
Boyer & Co., and C. T. Crol e, 55
Bouquets, Berberis Aquifolium, Leaves for, 349
Branches, Stems and, Structure of, 43
Brandy from Saw Dust, 188
Brandywine Raspberry, The, 88, 120
Brier's Sweet Crab Apple, 58
Brown's Wonder Strawberry, New, 281
Bud Grafting Pears, Summer, 119
Buds, Peach, Destruction of, 55
Bug-Proof Potato, 157
Bulbs, New, 155
Bulbs, Planting, 274
" Small, 136
Burned out, but not Burnt up, 87
Business Notices, 86

C

Cabbage Moth, The, 250
Cactus, Night Blooming, 360
Cadawalader's Golden Apple, 120
Caladium Esculentum in the Ground, 85
Caladiums, Names of, 247
California, Lima Beans in, 60
Calla, The, 255
Callicarpa Purpurea, 373
Callitris Quadrivalvis, 5
Calochortus Leichtiinii, 316
Camellias Seedling, 152
Canada, The Grape in, 59
Canadian Wonder Bean, 120
Carbolic Acid Soap, 152
Card of Thanks, 216
Carica Papaya, Wonderful Growth of, 55
Carpinus Betulus, 110
Carya Alba, 110
" Amaro, 110
" Glabra, 110
" Oliviformus, 110
" Sulcata, 110
" Tomentosa, 110
Castanea Sativa, 111
Castanopsis Argentea, 111
Casuarina Glauca, 111
" Quadrivalvis, 111
" Suberosa, 111
Catalogue, Landreth's Illustrated, 57
" of Geo. Sne , 314
" of Lilies, 344
Catalogues, 57, 313
Cats, New use for, 235
Cauliflower, About, 212
Cedar of Lebanon, How to Grow the, 39
" Oregon, 378
Cedrela Taona, 111
Celery, Sandringham White, 120
" Wild, 117, 150, 181, 214
Cells, Contents of, &c., 44
Celtis Australis, 111
" Occidentalis, 111
Cephalotaxus Fortunei, 5
" The, 165
Ceratonia Siliqua, 111
Cereus Giganteus, 282
Cinnamomum Camphora, 111
Chambersburg, Pa., Peach from J. Heyser, 346
Chambers Pear, The, 250
Cherry, Frogmore Early Bigarreau, 250
" Leib, 28
" Meadow, 58
" New Ornamental, 373
" Royal Anne, 59, 120
" Stock for the West, The best, 311
" Trees, Insects on, 154
Chromo, Vick's, 119
Churns, Improved, 21

Circulation of Hot Water, 100, 163
Citrus Japonica, The, 186
Classes of Roses, The, 246
Classification, Botanical, 163
Clematis, 295
" Languinosa, 29
" Viorna, 246
Clematises, New, 282
Clerodendron Bungei, 84
Cleveland, Ohio, Fruit prospects near, 247
Climate of North-east Massachusetts, 248
Climbers grown as Trees and Shrubs, 165
Climbing Plants, Preferences of, 190
Codling Moth, The, 22
Col. Cheney Strawberry, 250
Cold Graperies, About, 144
Colorado, Beet Sugar in, 148
" Potato Beetle, The, 90
Columnea, The, 188
Communication, About a, 180
Communications, Notes and, 55
Complimentary Tickets, 275
Conifers, 193
Conservatories, Small, 148
Convallaria Majalis, 60
Co-operative Parks, 337
Cooper's Red Apple, 121
Cordon Training, Apple Stocks for, 115
Corn, Hybridized, Immediate Effect on, 218
" Transmutation of, 20
Cornus Paniculata, 217
Correspondent of the Rural Home, 51
Correspondents, To, 53, 310
Corruption in High Places, 80
Corylus Colurna, 111
Corynocarpus, Laevigata, 111
Cotinus Americanus, 158
Country-seat, Frank Leslie's, 376
Cowingo Seedling Strawberry, 222
Crab, Brier's Sweet, 52
" Soulard, 28
" " and Soulard Apple, The, 59
Criticisms, Horticultural, Good Temper in, 19
Crolie, C. T., & Boyer & Co., 84
Croton Grande, 317
Cryptomeria Japonica, 5
Cucumbers, 242
Cultivating Fruit Trees, Skill in, 78
Cultivation, Tea, in the U. S., 327
Culture, Asparagus, 325
" Forest and Timber tree, 124
" of Gloxinias, Gesneria and Cyclamen, 85
" Pear—The Larch, 165
" Rhododendron, 83
Cundurango, 115
Cunninghamia Cinensis, Hardiness of, 249
Cupressus, 5, 6
Curculio—proof Plums, 249
" The Plum, 250
Curious Sport in Grape Fruit, 21
Cut Flowers, 304
" Worm, Destroying the, 212
Cutting back Asparagus, 217, 247
Cuttings, Burying, for Summer Grafting, 153
" in Ice Houses, Keeping, 153
Crytanthera Chrysostephana, 317
Cyclamen &c., Culture of, 183
" Persicum, 189

D

Dacrydium Cupressinum, 6
" Franklini, 6
Dalmatia, Forest Renovation in, 284
Dammars, 6
Daphne Cneorum, 84
" " Majus, 198
Darlingtonia Californica, Flowering of the, 180
Death of Mr. Lyman, 85
Deciduous Shrubs, 341
Dendrobium Nobile, 168, 329
Dendro—Pomological Garden, A, 24
Department of Agriculture, The, 277
" " " Botanist to the, 20, 179
" " " Descriptive Catalogue of Plants, 279
Describing Fruit, 15
Destroying the Cut Worm, 212
Destruction of Peach Buds, 55
Detroit, Change of Firm at, 118
Dew, How formed, 150
Diana Grape, Fruitful, 55
Dimorphanthus Mandcharicus, 60
Dioecism in Asparagus, 274
Diospyros Virginiana, 111
Diseased Fruit, Precocity of, 167
Disease in Peach Trees, 311
Distribution of Plants, 332, 331
" " over Surface of the Earth, Natural mode of, 220
Dodds Mary, 232
Dog Story, A new, 174
Dollar and Cent Horticulture, 52
Domestic Notes, 14, 206, 337
Dommesta Bessarabia, The, 221
Doryanthes Excelsa, 117
Double Epigeæ, 232
" Gladiolus, 276
" Lilac Primrose, 150
" Peach Stones, 119
Dracænas, Marantas, &c., Propagating, 309
Dracæna Splendens, 317
Drouth in Winter, Death by, 214
Drouth, Forests vs., 185
Dr. Warder Strawberry, 317
Drying Fruit, 91
Dubuque, Notes from, 45
Durand's Oak, Quercus Durandii 123
Dwarf Orange, 216
" Pear, The Howell as a, 23

E

Early Grape Culturists, 105
" Peaches, 342
Early Winter, 378
Earth Worm, New, 283
Echeveria Abyssinica, 317
Editorial Notes, 174, 208, 239, 243, 270, 305, 338 367
Editor's Department, 310
Elevated Hot Beds, 264
Eligible Timber Trees. 4, 87, 72 108, 141, 168
Elliott's Mr., Letter, 52
Ellwanger & Barry's Catalogues, 314
Elms, Grafting, 119
Employers, Gardeners and their, 85
End of the World, 313
Engelhardtia Spicata, 112
England, Horticultural Notes from an American in, 45
English Gardeners, Good, 21
" Sparrow, The, 44
Epigæa, Double, 282
" Repens, 198
Ericas, 198
Errors of the Press, &c., 84
" Serious, 84
Eucalyptus Amygdalina, 112
Eucalyptus Citridodora, 141
" Diversicolor, &c., 142
Eucharis Amazonica, 335
European Larch, American Seed for the, 179
Evaporation on the Farm, 285
Evergreen Cuttings, Raising, 83
" Shrubs, 341
Evergreens and Deciduous Flowering Shrubs, Hardy, 199
" Borers on, 344, 373
" Hardy, Effects of Winter on, 146
" Mulching, 302
" Pinus Excelsa and other, 130
" The Shortcomings of, 300
" Winter on, at Harrisburg, Ohio, 267

F

Fairmount Park, 104
Fagus Cunninghami, 143
" Sylvatica, 142
Farmer and Gardener, The, 279
Farm Gardening and Seed Growing, 181
Fay's Early Peach, 118
Female the Better Half, The, 339
Ferns, New, 153
Fibre of Sporabolus, 371
Ficus Sycamorus, 143
" Macrophylla, 143
Fire Blight, 86
" Hot-Beds—Forcing Pits, 141
" Losses by, 119
Fitzroya Patagonica, 6
Flax, New Zealand, 347
Floral Sabbath, The, 239
Flore des Serres, 314
Florists Flowers, 159
Flower Decorations in Winter, 335
" Garden and Pleasure Ground, 1, 33, 65, 97, 129, 162, 193, 225, 257, 289, 321, 353
Flowering of the Darlingtonia Californica, 180
" Plants for April, 214
" " " June, 303
" " " May, 244
" Seasons, Variations of, 187
" Shrubs, 295
Flowers, Cut, 304
" Influence of Ammonia on the Color of, 156
" of the Altar, 61
Food with Vitality, Connection of, 240
Forcing Pits—Fire Hot-Beds 141
Ford's Hoosac Thornless Blackberry, 183
Foreign Notes, 15, 210, 339, 271, 339
" Pears, New, 27
" Works on Gardening, 54
Forest and Timber Tree Culture, 124
" Renovation in Dalmatia, 284
" Trees, on Planting, 126
Forests vs. Drouth, 185
Fourcroea Gigantea, 311
Fox Seedling Pear, New California, 183
" " Pears, 280
Frank Leslie's Country-seat, 376
Fraxinus Americana, &c., 148
" Heterophylla, 214
Freemontia Californica, 282
French Pears, New, 21
Frenela Actinostrobus, &c., 7
Frogmore Early Bigarreau Cherry, 250
Frost, How Hardy Trees are Killed by, 177
Frosts of March, Effects of the Severe, 196
Fruit Barrels, Size of, 126
" by Mail, 60
" Culture in the South, 276
" " Principle in, 149
" Describing, 15
" Destroyers, History of the, 220
" Diseased, Precocity of, 167
" Drying, 91
" Garden, 35, 67, 98, 130, 162, 182, 195, 227, 258, 292, 322
" Growers' Society, The Penna., 31, 62
" Prospects in Kentucky, 86
" " near Cleveland, Ohio, 247
" Trees in Grass, 23
" " Mulching, 23
" " Skill in Cultivating, 178
Fruitful Diana Grape, 55
Fruits, New Seedling, Raising, 145
Fuchsia, The, 91
Fuchsias from Seed, Raising, 54

C

Garden, A Dendro-Pomological, 24
" Prospects in Northern Michigan, 54
Gardeners and their Employers, 85
" Good English, 21
" Wages of, 87
Gardening, Foreign Works on, 51
" Is the Profession of, Worse than the aver'ge of Trades? 303
" Public, 273
" Winter, 208
" Works on, 54
Gardens, Woodward's, 223
Garrya Elliptica, 121
Gas, Heating by, 252
Gaultheria, 193
Geological Exploration of the 45th Parallel, Report of, 88
Geranium, Mrs. Pollock, Origin of, 54
" Paine's Perpetual, 223
Geraniums, New Double, 29
German Name of Abies Picea, 135
Germination—Its Relation to Sight, 157
Germ Theory, Application of, to the Making of Preserves, 157
Gesneria, &c., Culture of, 83
Ginkgo Biloba, 7
Gladiolus, Double, 276
" New, 374
Glass, About, 236
" Blue, 148
" Houses, Heating, 223
Glazing of Greenhouses, Close, 181
Gleditschia Robusta, 143
Gloxinias, &c., Culture of, 83
Goniophlebium Appendiculatum, 93
Good Temper in Horticultural Criticisms, 19
" Wine Needs no Bush, 30
Grafting Elms, 119
" Summer, Burying Cuttings for, 153
Grammar of the Greek Language, 87
Grammatical, 54, 120
Grape Culturists, Early, 105
" Diana, Fruitful, 55
" Fruit, Curious sport in, 21
" Gros Colman, 121

Grape Growing, 252
" " The Profits of, 134
" Grower's Ass'n., New York State, 128
" in Canada, The, 89
" in the South, The Ives', 251
" Isabella, Origin of the, 105, 167, 296
" Lycoming, 184
" Madresville Court, 120
" Peter Wylie, No. 1, 27, 280
" Root Insect, 146
" Vines, Thrip on, To Cure, 254
" Walter, 315
" " Corrections, 56
Graperies, Cold, About, 144
Grapes, Bottling, 187
" Hybrid, 106
" in Bottles of Water, Keeping, 254
" in Bottles, Preserving, 148
" Mildew in, 251
" Why do, fail, 348
Grass, Fruit Trees in, 23
" Rye, About, 119, 211
" Sparto, 311
Grasshoppers, A Machine to Kill, 116
Greenhouse, 4, 290, 354
" Plants, &c., 69
Greenhouses, Boiler and Heating Pipes for, Arrangements of, 132
" Close Glazing of, 181
Grimes' Golden Apple, 183
Gros Colman Grape, 121
Growth in Plants, Increasing the Vigor of, 190
" of Plants in Frosty Weather, 149
" of Pear Trees, Wonderful, 51
" of Radishes, Speedy, 157
Grubs, White, About, 9
Guevina Avellana, 143
Gully Apple, 59
Gymnocladus Canadensis, 144

H

Hæmenthus Taxicarius, 213
Hailey Apple, The, 346
Halesia Tetraptera, 181
Hardiness of Cunninghamia Chinensis, 249
" of Herstine Raspberry, The, 272
" of Swedish Juniper, 117
Harding's Mr., Letter, 53
Hardy Herbaceous Plants, 306, 307, 308, 341
" Trees, How Killed by Frost, 177
" " New, 155
Hearth and Home, 57
Heating by Gas, 252
" by Hot Water, 46, 282, 328
" " " Advantages and Disadvantages of, 336
Hedges, Pyracantha, 117
Herstine Raspberry, Hardiness of, 272
" " The, 183
High Places, Corruption in, 80
Hitching's Boilers, Cost of, 312
Hockett's Sweet Apple, 315
Hoopes, Bro. & Thomas, Ornamental Catalogue of, 220
" President, Address of, 49, 75
Hoosier Schoolmaster, The, 220
Horse Chestnut, Autumn Flowering of the, 319
Horticultural Criticisms, Good Temper in, 19
" Notes from an American in England, 45
" Society, Champaigne, 320
" " Exhibition at Louisville, 319
" Exhibiti'n Lyons, 374
" " Kansas State, 319
" " Massachusetts, 96
" " Nebraska State, 256
" " Ohio, 125 279
" " Penns., 31, 191, 288, 319, 350
" " Western New York, 64
" Observations in England, 377
" Journal Mission of, 371
" " Worcester Co., Mass. 220
Horticulture, Dollar and Cent, 52
" Ornamental, 175
" St. Louis, in, 152
" Troy, N. Y., about, 164
Hot-beds, Elevated, 264
Hothouse Building, 342
Hot Water, Circulation of, 100, 163
" Heating, Advantages and Disadvantages of, 336
" " by, 46, 282, 328
Howell Pear as a Dwarf, The, 23
How to Grow the Cedar of Lebanon, 39
Husbandmen, Warning to 135
Hybrid Grapes, 106
Hybridization, Experiments in, 302
" of Plants, Lecture on, 86
Hybridized Corn, Immediate Effect on, 218
Hydrangea, Variation in a, 372

I

Ice Houses, Keeping Cuttings in, 153
Improved Churns, 21
Increase of Pine Stumps in Girth after being Cut down, 22
Index, Our, 336
Insect, Grape Root, 146
Insects of Missouri, Fourth Annual Report on the, 219
" on Cherry Trees, 154
Inquirers, To, 117
Iowa, Notes from, 106
Ipomœas, 235
Irrigation Facts, 190
" The Principle of, 228
Isabella Grape, Origin of the, 105, 167, 296
Iva Frutescens, 85
Ives' Grape in the South, 251

J

Jerusalem Artichoke, 147
Journals, Horticultural, Missions of, 371
Juglans Cineraria, &c., 144.
" Rupestris, 157
Jujube, The (Zizyphus Sativa), 157
Juniper, Swedish, Hardiness of, 117
Juniperus Bermudiana, &c., 7

K

Kalmias, 197
Kansas Arboricultural Society, 127
Kansas State Board Agriculture, EighthAnnual Exhibition, 257
Keeping Grapes in Bottles of Water, 254
Kirtland, Professor, 59
Koireutheria Paniculata, 91

L

Label, A new, 93
Labels, Zinc, Indelible ink for, 179
Lachenalia tricolor, 374
Lafayette & Co. in New York and Phila., 214
Landreth's Rural Register, 57
Lanier Apple, 28
Larch, European, American Seed for the, 179
Larch, European in America, The Seedling of the, 330
Larch, The—Pear Culture, 165
Large Asparagus, 179
" Pecans, 223
" Southern Peaches, 153
" Tomato, A, 56
Latin names for Varieties, 152
Laws, Our New, 344
" Post Office Change in, 345
Laxton's Peas, 23, 85
Layering, 214, 267
Leaf, The fall of the, 286
Lebanon, Cedar of, How to grow, 39
Ledums, 197
Leptosyne Gigantea, 121
Letter, Mr. Elliott's, 52
" Mr. Harding's, 53
Lencadendron Argenteum, 168
Liatris Odoratissima, 283
Libocedrus Chilensis, &c., 8
" Decurrens, 8, 30
Lieb Cherry, The, 28
Light, Germination, its relation to, 185
Lilies, Catalogue of, 158
Lilium Auratum, 325
Lily of the Valley, 60
Lima Beans in California, 60
" without poles, 156
Linaria Cynabalaria, 22
Lincoln Sweet Apple, 315
Liquidamber Altingia, 169
" Styraciflua, 169
Liquid Manure-, 137
Liverpool, Horticulture at, 287, 318
Locust Trees, 180
London Horticultural Society Show, The best Roses at, 285
Losses by Fire, 119
" the Winter, 213, 249
Loudons, Last of the, 147
Louisiana, The Season in, 150
Louse, Oyster Shell bark, The, 331
Lycoming Grape, The, 184
Lyman, Mr., Death of, 85.
Lyons Horticultural Exhibition, 374

M

Macadamia Ternifolia, 169
Machine to kill Grasshoppers, A, 116
Maclura Aurantiaca, 169
Madia Radiata, 156
Madresfield Court Grape, 120
Magnolias, Raising, 371
Maguey, The Yelle and, 263
Mail, Fruit by, 60
Maine, Tree Planting in, Encouragement of, 185
Male Asparagus, 344
Manures, Chemical, School of, 279
Manures, Liquid, 137
Manuring for Strawberries, 127
Maple, Ash-leaved, Sugar from the, 147
Maple, Red, 217
Marantas and Draccenas, Propagating, 309
March, Effects of the severe Frosts of, 196
Marechal Neil Rose, 22, 266
Maria Louisa Violet, 23
Market Value of Rose Leaves, 223
Mason Pippin Apple, 59
Massachusetts Horticultural Society, 96
Massachusetts, North-east, Climate of, 248
Matilda Strawberry, The, 183, 346
McAdow Cherry, 58
McMahon, Bernard, 241
Medical properties of Night Blooming Cereus, 249
Memphis, Tenn., Notes on the Season and Crops at, 296
Menziesias, 198
Mercer Apple, 121
Mexican Beans, 160
Michigan, Great Union Fair of, 256
Michigan, Northern, Garden prospects in, 54
Michigan, Peaches in, 59
Mignonette, Parson's White, New, 282
Mildew in Grapes, 251
Mildew on Peach Trees, 371
Mississippi, Notes from, 265
Monstera Deliciosa, 249, 294, 364
Monthly, Binding the, 55
Morus Rubra, 169
Moth, The Cabbage, 250
" Codling, 22
Moving and Replanting Trees, 160
Mulching Evergreens, 302
" Fruit Trees, 22
Myrtle, White Crape, The, 24

N

Nageia (Podocarpus) Cupressina, &c., 8
Name of Plant, 214, 312, 371
Names, Latin, for Varieties, 152
" of Apples, 309
" " Caladiums, 247
" " Plants, 116, 216
Narragansett Raspberry, The, 28
Nashville, (Tenn.) New Firm, 83
Native Plants, 153
Nebraska, Champion Tree Planter of, 185
New Bulbs, 155
" California Pear, Fox seedling, 183
" Clematises, 282
" Crimson Primrose, 122
" Dog Story, A, 174
" Double Geraniums, 29
" " White Pelargoniums, 286
" Earth Worm, 283
" Ferns, 155
" Foreign Pears, 27
" French Pears, 21
" Gladiolus, 374
" Hardy Trees, 155
" Label, A, 93
" Leaf Plants for 1871, 154
" Mignonette, Parsons' White, 282
" Nashville, (Tenn) Firm, 83
" Œnothera from Utah, 122
" Ornamental Trees and Shrubs, 89

New Pears, 250
" Pink Bouvardia, 55
" Post Office Decision, 373
" Seedling Fruits, Raising, 145
" Strawberry, Brown's White, 282
" Sunflower, 222
" use for Cats, 285
" White Radish, 378
" York, Botany in, 179
" " State Grape Grower's Association, 123
" " Swindling in, 149
" Zealand Flax, 347
Night Blooming Cereus, Medical properties of, 249
Night Blooming Cactus, 360
Nitrogen in Plants, Source of, 190
Non-Flowering of an Oleander, 150
Note on Amaryllis and other matters, 301
Notes, 235
" and Communications, 55
" Domestic, 14, 208, 243, 271, 305, 339
" Foreign, 15, 210, 239, 271, 369
" from Dubuque, 45
" " Iowa, 106
" " Mississippi, 265
" " Western Penn'a, 140, 207
" Horticultural, from an American in England, 45
" on the Season and Crops at Memphis, Tenn., 296
" on the Winter at Dansville, N. Y., 200
" Rambling, 294
" Rhododendrons, & other 173
" Rocky Mountain, 53
Novelty in Norway Spruce, 176

O

Oak, Durand's 123
Obituary, 370
Observations in England, Horticultural. 376
Oceanica, Burra Burra, South Australia, Scenes around, 100
Odors of Plants, The, 94
" on the relation of, to Plant Life, 138
Ohio Horticultural Society, 125
Oleander, Non-Flowering of an, 150
Oleanders, Pomegranates, &c, 84
Orange and Lemon Orchard, An, 23
Orange, Dwarf, 216
Orchard House, Peaches for an, 84
" Peach, A large 91
" Orange and Lemon, An, 23
Orchids, 75, 112, 168, 293, 360
Oregon Cedar, 378
Oregon, Ribes Sanguinea in, 24
Ornamental Horticulture. 175
Osage Orange Timber, 184
" " The Wood of the, 30
Ostrya Carpinifolia, 169
" Virginica, 169
Our Fourteenth Volume, 334
Our Index, 365
Out West, 57

P

Palms from Seed, Raising, 119
Paper, An Agricultural, 21
" Flore, Sporobalus Cryptandrus, 242
Parasite on the Apple Worm, 147
Park, Fairmount, 101
Parks, City of St. Louis, 59
" Co Operative, 337
" Public, 13
Park's Late Cling Peach, 346
Paying through, 275
Payne's Perpetual Geranium, 222
Peach, Alexander, 247
" Black's Early, 280, 372
" Blood-Leaved. 316
" Buds, Destruction of, 55
" Fay's Early, 118
" for J. Heyser, Chambersburg, Pa., 346
" Orchard, A large, 90
" Park's Late Cling, 346
" Plowden's Seedling, 250
" Stanley's Late, 347
" Stones, Double, 119
" Trees, Disease in, 311
" " Mildew on. 371
" Yellows in the, 118, 166
" " " Cause of, 16
" " of the, 374
Peaches, Atlantic and Richmond, 347
" Blodgett's Late, 347
" Early, 312
" for an Orchard House, 84
" in Michigan, 59
" Large Southern, 153
Peanut, Varieties of the, 184
Peas, Laxton's, 23, 85
Pear, Apple Seeds sold for, 24
" Blight, 247
" Chambers, The, 250
" Culture—The Larch, 165
" from York, 314
" Fruit from an Apple Tree, 313
" Growing in Saratoga, N.Y., 60
" Howell as a Dwarf, The, 23
" in the South, Stability of the, 92
" New California, Fox Seedling, 183
" profitable, A. 348
" Quinn, 58
" Richardson, 315
" Ripening of the Vicar of Winkfield, 23
" Seed, On the Treatment of, 231
" Trees near Washington, 185
" " Stately Row of, 206
" " Wonderful growth of, 51
" Tree, The Profit of a, 117
Pears, for the Great Plains, 184
" Fox Seedling. 230
" New, 250
" " Foreign, 27
" " French, 21
" Some good, but not well-known, 90
" Summer Bud-Grafting, 119
" Winter, 92. 127
Pecans, Large, 223
Pelargonium, Double White, 236
Pelargoniums, Zonal, as Standards, 160
Pennsylvania Fruit Grower's Society, The, 20, 62
" Horticultural Society, 31, 191, 288, 319, 350
" Western, Notes, from. 207
Peristrophe Salicifolia Aureo-Variegata, 214
Peter Wylie Grape, No. 1, 27, 280
Phaseolus Caracalla, On the, 173
Philadelphia, Academy of Natural Sciences of, 96, 224, 352
Philadelphia and its Environs, 219
Philadelphus Gordonianus, 247
Phillocladus Rhomboidalis, &c.. 8
Pilea Muscosa, 274
Pine, Sap, 179
" Stumps, Increase in girth after being cut down, 22
Pinus Abies, 8
" " Var. Cephalonica, &c., 9
" Cembra, 37, 217
" Cembroides, &c., 37
" Dumosa, &c.. 38
" Monophylla, &c., 72
" Picea, &c., 73
" Sylvestris, &c., 74
" Excelsa and other Evergreens, 130
Pistachia Japonica, 169
Plains, The best Pears for the, 184
Planera Japonica, 169
Planting Bulbs, 274
" Forest Trees, On, 126
" Street, Trees most suitable for, 324
Plant Life, Relation of Odors to, 138
" Name of, 214, 312, 371
Plants and Seeds, Postage on, 305
" Bedding, 308. 341
" Climbing, Preferences of, 190
" Distribution of, 332, 361
" Flowering for April, 214
" " February, 151
" " June, 316
" " March, 151
" " May, 244
" " September 34
" for Blooming in Winter, 85
" Frosty Weather, Growth of in, 149
" Hardy Herbaceous, 306, 307, 338, 341
" How they behave, 279
" Hybridization of, Lecture on, 86
" Keeping, over Winter 373
" Mineral Matter in, Amount and Origin of, 347
" Names of, 116, 214, 216, 312
" Native, 153
" Odors of, 94
" Source of Nitrogen in, 190
" Summer Bedding, 309
" Trees and, Protective duties on. 116
" Vigor of Growth in, Increasing the, 190
" Window, 3, 83
Platanus Occidentalis, &c., 169
Plowden's Seedling Peach, 250
Plum Curculio, The, 251
Plums, Curculio-Proof, 249
Pollock, Mrs., Geranium, Origin of, 54
Pomegranates, Oleanders, &c., 84
Pomological Society, Michigan State, 256
" Society's Proceedings, 247
Popular Science Monthly, 314
Populus Alba, &c., 169
" Grandientata, &c., 170
Postage Laws, Our, 341
Post-Office Laws, 274
" " Change in the, 345
" Decision, New, 373
" Matter, 372
Potato Beetle, The Colorado. 90
Potato, Bug-Proof, 157
Potatoes, Strawberries with, 283
Polygonum Cuspidatum, 133
Preserves, Application of the Germ Theory to the making of, 157
Preserving Grapes in Bottles, 148
Press, Errors of the, &c., 84
Price Lists of Horticultural Buildings, 246
Primate Apple, 274
Primrose, Double Lilac, 150
" New Crimson, 123
Primula Japonica, 122, 123
Princeton, N. J., The Winter at, 343
Principle in Fruit Culture, 149
Profit of a Pear Tree, The, 117
" Grape Growing, The, 134
Propagating Marantas and Dracœnas, 309
Propagation of Shrubs, 275
Protection, Winter, 236
Public Gardening, 273
" Parks, 13
Punctuation, Treatise on, 87
Pyracantha Hedges, 117
" The, 167

Q

Quantity of Beets to the Acre, 153
Queensland, Australia, Rambles in, 200
Quercus Alba, &c., 170
" Durandii, 123
Quinn Pear, 58

R

Radish, New White, 378
Radishes, Speedy Growth of, 157
Railroad Æsthetics, 300
Raising Evergreen Cuttings 83
" Fuchsias, from Seed, 54
" Magnolias, 371
" Palms from Seed, 119
" Rhododendrons from Seed, 84
Rambling Notes, 294
Raspberry, Brandywine, 88, 120
" Hardiness of the Herstine, 272
" Herstine, 183
" Narragansett, 28
Recollections, Travelling, 17, 47, 81, 112
Recollections from Brisbane, Queensland to Armandale New South Wales, 356
Red Maple, 217
Replanting of Trees, Moving and, 160
Rhode Island Greening Apples Sweet, 23
" Society for Encouragement of Domestic Industry, Transactions of, 277
Rhododendron Culture, 83
Rhodendrons, 197
" and Azalias at Bloomsdale, 311
" and other Notes, 173
" Raising from Seed 84
Rhodoras, 197
Rhus Aromatica, 217
" Succedanea, 171
" Vernicifera, 171
Ribes Sanguinea in Oregon, 24
Richardson Pear, 315
Robbins Arena Strawberry, 250
Robinia Pseudacacia, 171
Rocky Mountain Notes, 53
Rocky Mountains, Trees of the, 118
Roots, Structure of, 41
Rose Leaves, Market Value of, 223
" Marechal Neil, 22, 286
Roses, 255
" at the London Horticultural Society's Show, The Best, 235
" The Classes of, 246
Royal Anne Cherry, 79, 120
Rural Home, Correspondent of the, 54
" New Yorker, 56
Rye Grass, About, 119, 211

S

Salix Alba, &c., 172
Salt for Asparagus, 179
Salvia taraxacifolia, 373
Sap Pine, 179

Sandringham White Celery, 120
Saratoga, N. Y., Pear Growing in 60
Sassafras Officinale, 172
Sawdust, Brandy from, 188
Sciadopitys Verticillata. 74
Seeding of the European Larch in America, 179, 33)
Seedling Apple, 282
" Camellias, 152
Seed, Raising Fuchsias from, 54
" Palms from, 119
" Rhododendrons from, 84
Seed, Two kinds from one, 8)
Seeds and Plants, Postage on, 305
Sempervervium Tectorum, 2)5
Sequoia Sempervirens, 74
" Wellingtonia, 74
Serious Error, 84
Shrubs, Deciduous, 341
" Evergreen, 341
" Flowering. 295
" Lists of, 11)
" Propagation of, 275
Small Bulbs, 136
" Conservatories, 148
Smith's Favorite Apple, 25,
Snow, Effect of, on the Temperature of the Soil beneath it, 347
Soulard Apple and Soulard Crab, 89
" Crab Apple, 28
South Australia, Oceanica, Scenes around Burra Burra, 100
" Fruit Culture in the, 2)6
" Stability of the Pear in the. 92
Southern Peaches, Large, 152
Sophora Japonica, 172
Sparrow, English, The, 44
Sparrows, Utility of, 61
Sparto Grass, 311
Sporobalus Cryptandrus, Paper Fibre, 342
" Fibre of the, 371
Sport in Grape Fruit, Curious, 21
Spruces, Norway, Novelty in, 176
Spruce, White, 294
Stanley's Late Peach, 347
Staphlea Bumalda, 181
Statice Halfordii, 301
Sterility, 77
St. Louis, City Parks of, 59
" Horticulture in, 152
Strawberries, Manuring for, 127
" with Potatoes, 243
Strawberry, Best, The, 150
" Brown's Wonder, New, 281
" Col. Cheney, 250
" Cowing's Seedling, 222
" Dr. Warder, 346
" Matilda, 183, 346
Strawberry, Robbin's Arena, 250
" Wilson, 346
Structure of Roots, 41
" Stems and Branches, 43
" the Leaf, 77
Sub-tropical Garden, or Beauty of Form in the Flower Garden, 25
Suggestions, 77
Sunflower, New, 222
Swedish Juniper, Hardiness of, 117
Swindling in New York, 149

T

Tamarix Plumosa, 156
Taxodium Distichum, &c., 74
Taxus Baccata, 74
" Brevifolia, 75
Teacher's Guide to Bartholomew's Drawing Book, 87
Tea Cultivation in the U. S., 327
" Rose, Mlle. Rachel, 180
Temperature of the Soil, Effects of Snow on the, 347
Thanks, 342
Thrip on Grape Vines, to Cure, 254
Thuya Gigantea, 75
" Occidentalis, 75
Thuyopsis Dolobrata, 75
Tilia Americana—T. Europæa, 172
Tilton's Journal of Horticulture, Clubbing, 55
Timber, Osage Orange, 184
" Trees, Eligible, 4, 37, 72, 108, 141
Tomato, A Large, 56
Torreya Californica, &c., 75
Transmutation of Corn, 20
Traveling Recollections, 17, 81, 112
Tree Planter of Nebraska, The Champion, 185
Tree-Planting in Maine. Encouragement of, 185
" Kansas Pacific, Along the Line of the, 268
Trees, 199
" Aged, 80
" and Plants, Protective duties on, 116
" " Shrubs, 309
" " " Climbers Grown as, 165
" " " Killed in Winter 1871-2, 309
" " " New Ornamental, 80
" for Street Planting, most Suitable, 324
" Hardy, for the Seaside, 295
" " How Killed by Frost, 177
" " Ornamental and Flowering, 199
" Locust, 180
" Moving and Replanting, 160
" New Hardy, 155
" of the Rocky Mountains, 118
" Pear, Wonderful Growth of, 51
Troy, N Y., Horticulture about, 164
Tuberoses, About, 162
Turnips, What I know About, 230, 260, 297

U

Ulmus Campestris, &c., 172
" Floridana, &c., 173
Utah, New Œnothera from, 122
Utility of Sparrows, 51

V

Vanda Cœrulea, 360
Variation in a Hydrangea 372
Variations of Flowering Seasons, 187
Varieties, Latin Names for, 152
" of Scotch Pine, 152
" of the Pea Nut, 184
Vegetable and Animal Life, 70
" Garden, 3, 36, 68, 99, 131, 162, 195, 228, 259, 291, 324, 355
Vicar of Winkfield Pear, Ripening of the, 23
Vick's Chromo, 119
Victoria, Australia, from Melbourne to Geelong, Recollections of Journey, 10
" Regia, Search for the, 233
Violet, Maria Louisa, 23
Vitality, Connection of Food with, 240
Volume, Our Twentieth, 365

W

Wages of Gardeners, 87
Waldridge Apple in Wisconsin 56
Wall-Flowers, Improved, 222
Walter Grape, 315
" " Correction, 56
Walnut, Persian, 118
Walnut, Small Fruited Black, 157
Washington, Pear Trees near, 185
Waste Basket, The, 216
Water, Too much, 176
Western New York Hort. Society, 64
" Penna., Notes from, 140
" Rural, The, 22
" Triumph Blackberry, 315
Where can things be had? 117
White Crape Myrtle, 24
" Grubs, About those, 9
" Spruce, 294
Widdringtonia Juniperoides, 75
Wild Celery, 117, 150, 181, 214
Wilder, Col. M. P., Portrait of 153
Window Gardening, 2 8
" Plants, 3, 83
Winter at Dansville, N. Y., Notes on the, 200
" Death by Drouth in, 214
" Early, 378
" Flower Decorations in, 335
" Gardening 203
" Losses by the, 213 249
" Memorable, The, 204
" on Evergreens at Harrisburg, Ohio. 287
" on Hardy Evergreens, Effects of the 143
" Pears. 92, 127
" Plants for Blooming in, 85
" Protection, 236
" The, at Princeton, N. J., 343
Wonderful Growth of Carica Papaya 55
" " of Pear Trees, 51
Wood of the Osage Orange, 30
Woodward's Gardens, 225

Y

Yellows in the Peach, 118, 168, 373
" " " Cause of, 16
" The, 184
Yatle and Maguey, The, 253

Z

Zinc Labels, Indelible Ink for 174
Zinnea Haageana Flore Pleno. 29
Zonal Pelargoniums as Standards, 153
Zygopetalum Crinitum, 113
Zyzephus Sativa, The Jujube, 157

THE GARDENERS MONTHLY And Horticultural Advertiser

EDITED BY THOMAS MEEHAN.

Vol. XIV. No. 1

JANUARY, 1872.

PUBLISHED BY BRINCKLOE & MAROT,

No. 23 North Sixth Street, Philadelphia.

TERMS:—TWO DOLLARS PER ANNUM

The Gardener's Monthly,

EDITED BY THOMAS MEEHAN,

Assisted by an able Corps of AMERICAN and FOREIGN CORRESPONDENTS.

It is published on the first of every month, at the office, No. 23 NORTH SIXTH STREET, PHILADELPHIA, where all BUSINESS communications should be addressed.

Communications for the Editor should be addressed "THOMAS MEEHAN, GERMANTOWN, Philadelphia

TERMS:—$2.00 A YEAR.

For Terms of Advertising, &c., see First Page of Advertisements.

BRINCKLOE & MAROT, Publishers, 23 North Sixth Street, Philadelphia.

CONTENTS OF THE JANUARY NUMBER.

MONTHLY HINTS:

Flower Garden and Pleasure Ground..... 1
Vegetable Garden..... 3
Window Plants..... 3
Greenhouse..... 4

COMMUNICATIONS:

Eligible Timber Trees..... 4
About those White Grubs..... 9
Victoria, Australia—Recollections of a Journey from Melbourne to Geelong..... 10
Public Parks..... 13
Notes..... 14
Describing Fruit..... 15

EDITORIAL:

The Cause of Yellows in the Peach..... 16
Traveling Recollections..... 17

SCRAPS AND QUERIES:

Good Temper in Horticultural Criticisms—The Pennsylvania Fruit Growers' Society—An Agricultural Paper—Transmutation of Corn—The Botanist of the Agricultural Department—Good English Gardeners—New French Pears—Improved Churns—Curious Sport in Grape Fruit—Increase of Pine Stumps in Girth after being Cut Down—The Western Rural—Marechal Neil Rose—The Codling Moth—Mulching Fruit Trees—Linaria Cymbalaria—Fruit Trees in Grass—Ripening of the Vicar of Winkfield Pear—The Howell as a Dwarf Pear—Sweet Rhode Island Greening Apples—Violet Maria Louisa—The American Entomologist—Laxton Peas—An Orange and Lemon Orchard—Ribes Sanguinea in Oregon—A Dendro-Pomological Garden—Apple Seeds sold for Pear—The White Crape Myrtle..... 19–24

BOOKS, CATALOGUES, &c.:

The Art of Beautifying Suburban Home Grounds of Small Extent..... 24
The Subtropical Garden, or Beauty of Form in the Flower Garden..... 25

NEW AND RARE FRUITS:

New Foreign Pears—St Crispin Pear—Peter Wylie Grape, No. 1—Lanier Apple—Soulard Crab Apple—The Narragansett Raspberry—The Lieb Cherry—Smith's Favorite Apple..... 27, 28

NEW AND RARE PLANTS:

Zinnia Haageana Flore-pleno—Clematis Lanuginosa—New Double Geraniums..... 29

FOREIGN INTELLIGENCE:

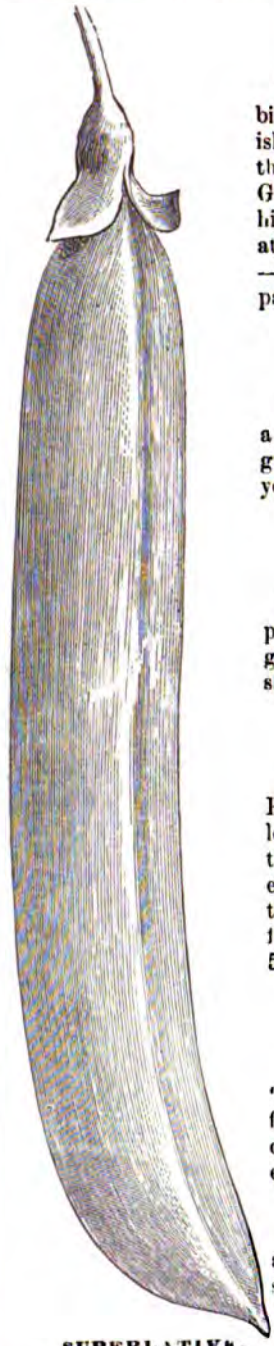
Libocedrus decurrens—The American Aspen—The Wood of the Osage Orange—Good Wine needs no Bush—Aged Trees..... 30

HORTICULTURAL NOTICES:

Pennsylvania Horticultural Society..... 31

MR. LAXTON'S NEW PEAS FOR 1872.

The following novelties in Garden Peas for 1872. the finest and latest productions of Mr. LAXTON, the originator of "Prolific Long-pod," "Alpha," and "Supreme," can be confidently recommended as decided acquisitions, having been thoroughly tested for several years, and selected at great expense from hundreds of cross-fertilized varieties, the majority of which, although far in advance of older sorts in cultivation, have been discarded and suppressed



SUPERLATIVE,
Average Size, (from a Photo.)

William the 1st.

The finest Pea yet sent out for earliness, flavor and appearance combined. It is a first early variety, with long and well-filled deep greenish pods ; ripe seed parti-colored, like "Ne Plus Ultra" It has been thoroughly tested and recommended at the Royal Horticultural Society's Gardens at Chiswick on several occasions and was the only Pea exhibited in Mr. Gilbert's first prize "Gardeners" collection of Vegetables at the Society's Exhibition at Nottingham in July last. Height 3 feet, —For further description see Hogg's Gardeners' Year Book for 1871, page 73.

Griffin.

A remarkable and distinct variety. as early as "Sangster's No 1." of a fine color and flavor when cooked ; the ripe seed is also of a bright grass green color, and well calculated to supply "Green Peas all the year round." Pods medium sized : height about 2 feet 6 inches.

Popular.

For general crop this blue wrinkled marrow will be found earlier, more prolific, and to have better filled pods than those of "Champion of England," to which variety it is quite equal in flavor, and against which it should be tried. Height about 4 feet.

Superlative.

The largest and finest podded variety yet raised : indispensable as an Exhibition Pea. The pods which have been exhibited 7 inches in length, are more than twice the size of those of the parent Pea, "Laxton's Supreme," which during the last three seasons has taken nearly every first prize when shown in competition. It is also quite as early as that variety, and very prolific. As "Superlative" sometimes runs 7 or 8 feet in height, it should be slightly pinched in when the growth is about 5 feet. The color and flavor of the Peas, when cooked, are excellent.

Omega.

This dwarfish late Pea was raised by fertilizing "Ne Plus Ultra" with "Veitch's Perfection," and has all the valuable characteristics of the former variety. It is remarkably prolific, the pods are very fine and closely filled, and the flavor and color of the peas, when cooked, unequalled. Ripe seed like "Ne Plus Ultra." Height 2 feet 6 inches.

These Peas will be sent out in small sealed packets, for Trial only, at £1 1s. 0d. per collection and may be had of most of the principal seedsmen in the United States and Canada. The Trade must apply to Mr. THOMAS LAXTON, STAMFORD, ENGLAND.

CAN BE OBTAINED OF

Mr. ROBERT BUIST, Jr., 922 and 924 Market Street, Philadelphia.
Also, of J. M. THORBURN & Co., 15 John Street, New York.

MY SPRING CATALOGUE

OF

BEDDING PLANTS FOR 1872,

Will be ready about the 1st of January.

In it I shall offer many admirable novelties, such as

New English, French and Belgian Geraniums.
New and most excellent Cannas.
New and very distinct Lantanas.
New and beautiful Ivies in great variety.
New English Fancy Pelargoniums of exquisite beauty.
New and rare Ferns,

And a host of other fine plants.

For years past I have imported nearly all the new varieties of

FRENCH HYBRID GLADIOLUS,

and have made their cultivation a matter of special attention. My collection this season is large and extremely varied, well deserving the attention of all who love this beautiful flower.

My *Bulbs of Double Tuberoses* are quite equal to the average of former years, and with fair treatment will produce admirable results.

The *attention of the Trade* is specially called to my

Stock Plants of Verbenas

Entirely free from disease

Attention is also called to my collection of *Rare Plants for Hothouse and Greenhouse*, and to the collection of

ORCHIDS,

Containing superb specimens, all of which are in the most vigorous health imaginable.

ALSO, TO THE

Foreign Grapes for Graperies,

Grown in the best English style, and calculated to produce the best and quickest results, whether cultivated in pots or planted in the Grapery. Address for catalogues, free of charge,

GEORGE SUCH,

South Amboy, New Jersey.

FIRE CAMPAIGN!

FOR COUNTRY AND TOWN, FOR OLD AND YOUNG.

STILL AT THE FRONT!

FROM THE PEOPLE.—**"The farmers must support their paper, for it has supported the farmers."**—John Vasey, Jacksonville, Ill. **"We can't do without the dear Farmer."**—C. Bateman, Fort Calhoun, Neb. **"I value the Farmer more than any other Agricultural journal in the United States."**L. D. Watkins, Manchester, Mich. **"We farmers love The Prairie Farmer."**—L. L. Eldred, Carrolton, Ill. **"You have the esteem and confidence of the Great West."**—N. C. Dudley, Nursery Hill, Neb. **"You can't think how overjoyed we were to hear from our dear old Prairie Farmer."**—Kittie R Jordan, Rochester, Minn. **"When I heard of the great fire my first thought was about my dear old Farmer."**—Wm. Lindell, Jerseyville, Ill.

FROM THE PRESS.—**"The leading agricultural Journal of the North-west."**—American Artisan, New York. **"We only hesitatt Obout urging you to subscribe for fear the result of it would be that you would go West."**—Vermonter, Vergennes, Vt. **"Richly deserves the liberal patronage of the farmers of the West."**—Platte Journal, Columbus, Neb. **"A Western institution, of which we are all proud."**—Chief, Fort Atkinson, Wis. **"The most popular farm and family paper in the West."**—Advertiser, Tipton, Iowa. **"The best of farm journals."**—Courier, Findlay, Ohio. **"The best and most ably edited agricultural paper."**—Missourian, Lamar, Mo. **We don't see how a man can pretend to farm without it."**—Index, Wenona, Ill.

Though our convenient and well appointed offices, together with their entire contents, were totally destroyed by the recent Great Fire, yet the reliable old PRAIRIE FARMER, which for more than THIRTY YEARS has wended its way, Winter and Summer, through Storm and sunshine, twithout intermission, to the firesides of its thousands of readers—true to its record, never missed an issue, but has been mailed regularly, every week since the fire, to all its subscribers. It has put on an entire new dress, and goes forth as neat and attractive, as handsomely illustrated, and as replete with varied and instructive contents, as ever. But our loss has been very heavy, and years of hard labor and frugality can scarcely repair it; yet, with God's blessing and the help of our friends, we shall strive to earn prosperity and win a greater Measure of success for the PRAIRIE FARMER than ever. The brethren of the press have unanimously uttered noble and cheering words of praise and encouragement, and our patrons everywhere—the old wheel-horses of Western agriculture, and the readers of but half a year's standing; the wives and mothers, the boys and girls—have spoken and acted words of sympathy and support far beyond what we could have expected or hoped for. And now, as the long winter evenings are upon us, we are casting about to see how it may come to pass that we can, to some extent, repay all this spontaneous outburst of generosity and ardent support that indeed proves the whole world akin. We hope to do this by seading to the fireside of each patron something that shall instruct, something that shall improve, something that shall amuse, something that shall suggest thought, something that shall stimulate to experiment, something that shall make nobler and better every member of the family. With the farmer we shall discuss the matters of the field, the orchard and the stable. With the farmer's wife we shall gossip over the topics of the kitchen, the dining room and the flower garden. With the children we shall chat about all the little and big affairs of the world, that we think will do them good and make them excellent citizens and members of society. With all we shall fairly and fearlessly discuss the Topics of the Day. For all we shall condense the News of the Week, as we gather it from all parts of the world, and for the farmers everywhere, we shall endeavor to maintain their rights, protect their interests and warn them against frauds and rascalities, of whatever name or nature. In brief, we shall endeavor in THE PRAIRIE FARMER to supply everything that we know how to supply or that the reader can expect, in a farm or fireside journal

EVERY PERSON

Living at the East, who contemplates removing to the West, and every person, East or West, who is not already a subscriber, and who desires the latest, most thorough and reliable information of practical value concerning the Growth and Development of the West and Northwest, particulars relating to the Public Domain, Character of Western Soils, the most successful modes for their Cultivation, Tree Planting, Fruit Growing, etc., etc., should not fail eo subscribe for the PRAIRIE FARMER for 1872.

AGENTS! FRIENDS! EVERYBODY!!

We call upon you, who have heretofere interested yourselves in our behalf, and also you who have not, to push on the good work of extending the circulation and influence of THE PRAIRIE FARMER. We do not want you to work for nothing, but ask you to remember that no other weekly journal of its class in the world offers more splendid inducements to subscribers and agents alike, and that no other is so easy and so profitable to canvass for among the industrial classes. Remember that our list comprises **150 PREMIUM ARTICLES**; also, that if you prefer a **CASH COMMISSION** to Premium Articles, you can deduct (in remitting) **TWEVEY PER CENT** from yearly or half-yearly subscriptions.

SUBSCRIPTION TERMS:

$2.00 per Year, in Advance. 3 Months on Trial, 50 Cts.

☞ Ask for Premium List, Specimen Numbers and Canvassing Documents, stating where you saw this advertisement, and they will be sent free. Address, in all cases,

THE PRAIRIE FARMER COMPANY, CHICAGO.

☞ Remit at our risk, by Post Office Money Order, Registered Letter, Draft, or Express.

Roses! Roses! Roses!

We will have ready February 1st, a Large Stock of

Bourbon, China, Noisette and Tea Roses,

(About 30 Fine Selected Varieties.)

These plants are well established in 3 in. pots; and are

Just the Thing for Nurserymen and Florists

TO GROW FOR SPRING SALES.

By our Improved Method of Packing in Lined Boxes, (without Balls), Express Charges are very trifling, and safe carriage is guaranteed.

In order to make room for other stock, he will receive orders to be shipped during February at

$8.00 Per Hundred, $70.00 Per Thousand.

No Charge for Boxes or Packing.

☞Orders booked and filled in rotation.

DINGEE & CONARD CO.,
Harmony Grove Nurseries,
jan2 WEST GROVE, CHESTER COUNTY, Pa.

We call attention to our stock of

NEW ROSES, GERANIUMS, FUCHSIAS, &c.,

GROWN FROM IMPORTATIONS OF 1871.

Among them, we name as follows:

NEW ROSES, offered for first time in Europe in 1871.

H. P. Princess Christian, Comtesse d'Oxford, Ferdenand de Lesseps, Louis Van Houtte, Paul Veron, Mad'lle Eugene Verdier, Mad'lle Juliette Halphen, Prince Leopold, Marquisse de Castellane, Reine des Beauties, Capt. Lamure, Henri Pages, Mons. Cordier, Madam Guillott de Mont Favel, Mad'lle Marie Gonod, Marquise de Ligneris, Gen'l de Lamartiniere and Chas. Turner.

Teas. Madam Triple, Mad. Celina Noirey, Mad. Azelie Imbert, Mad. Levit, Mad. Emilie Dupuy, Mad. Berard, Mad. Guillard, Monplaisir, Victor Pulliat; Marie Sisley, La Boule d'Or, Belle Macoinnaise, Belle Lyonnaise, La Mont Blanc, Triumphe de Guillot fils, and Sulphurieux.

Noisettes. Reve Dor, Margaretta, *China* Ducher, *Perp.* Moss, Madam Wm. Paul,

GERANIUMS.

Amethyst, Anabal, Bonfire, Boadicea, Caracticus, Cicero, Claude Loraine, Cyrus, Comet, Concord, Darius, Dante, Demosthenes, Fausta, Magnum Bonum, Mad'lle Neilson, Penelope, Proserpine, Robinson Crusoe. Also, Denny's Collection, Sir John Moore, Haidee, Diana, Iago, Iantha and Sir Charles Napier, and 25 named varieties from Shirley Hibberd's Superior Collection.

Also, New Double Geraniums, *Paul*, Pink Perfection, Mons. E. G. Henderson, Rosetta and others, and all the latest and best Tri-colored.

NEW FUCHSIAS.

Mrs. Bland, Mrs. Shirley Hibbard, Splendor, Princess of Wales, Little Harry, &c. Also a fine stock of the now popular bedding plants, Centaurea Clementi; Gymnocarpa, Argentea, Babylonica, d Plumosa aurea.

Most of which will be fully describ n our Catalogue, which will be mailed on application.

MILLER & HAYES,
Mount Airy Nurseries,
jan 5774 Germantown Avenue, Philadelphia.

1,000,000 CHOICE GRAPE VINES.

GREAT INDUCEMENTS.

As I have determined to quit Business and clear my Grounds, and have an immense and superior stock of Grape Vines, all raised from Mother's Breast by old wood layering, for sale this Fall and next Spring, and try to close up my extensive business. I offer these Vines at an exciting low price, to the Trade. CONCORD VINES, 1 and 2 yr. old, all raised from old wood layers, strictly No. 1, at only $1 per 100, or $20 per 1000. CONCORD VINES, 2 yr. old layers with 2 to 3 feet ripe canes, only $1 per 100; or $35 per 1000. CONCORD VINES, all 3 yrs. old, bearing layers, only $8 per 100: or $45 per 1000. CATAWBA and CLINTON same price as Concord. DELAWARE, old wood layers, all extra selected, with bearing canes, 2 to 3 feet long, $15 per 10 ; or $120 per 1000 DELAWARE, old wood layers No. 1, only $10 per 100; or $80 per 1000 HARTFORD PROLIFIC, strong layers, $8 per 100; or $40 per 1000. 2 and 3 yrs. old, $10 per 100 ; or $60 per 1000. DIANA, IONA, ISRAELLA, PERKINS, CREVELING, UNION VILLAGE, NORTON VIRGINIA, MAXATAWNEY, ROGERS' HYBRIDS, and some other strong vines, 1 and 3 yrs. old, only $12 per 100 ; $8 per 10 0. CYNTHIANA, EUMELAN and WALTER, strong vines, only $30 per 100. HERBEMONT, MARTHA and GOETHE, $15 per 100, 2 and 3 yrs. old, $30 per 100 All other varieties at low prices. Strawberry Plants, Raspberry, Gooseberry. Blackberry, Currants, Roses, Peonias, Rhubarb, Asparagus, Snowballs and other plants. Apple, Pear, Plum, Peach, Quince and Cherry trees cheaper than you buy any where else. Send your orders soon, as I expect to sell every vine at these *very low prices.* Address, DR. H. SCHROEDER,
Bloomington, Illinois. sep6

WALTER ELDER,

LANDSCAPE AND JOBBING GARDENER.

No. 1231 RODMAN STREET, Philadelphia,

Attends to all branches of his business on reasonable terms

RIFLES, SHOT-GUNS, REVOLVERS, Gun Material. Write for Price List, to GREAT WESTERN GUN WORKS, Pittsburgh, Pa. Army Guns, Revolvers, &c., bought or traded for. *Agents wanted.* [aug6

HERSTINE, BRANDYWINE,

AND OTHER

RASPBERRIES,

STRAWBERRIES,

BLACKBERRIES,

COLOSSAL ASPARAGUS, &c., &c.

Send for LOW PRICES.

JOHN S. COLLINS,
tf MOORESTOWN, N. J.

GOOD SOAP, like good wine, is Improved by Age

Among the ruins of Herculaneum, and Pompeii, Soap was found in a state of preservation, after having been buried over 1700 years.

A box of Soap in a family is better than "money at interest," as when from three to six months old, one pound will go farther than three pounds of new soap

Ask your grocer for a box of CRAMPTON'S LAUNDRY SOAP, and if he does not keep it, send your orders to CRAMPTON BROS., 84 Front St., New York, or to

KOONS & RUOFF, Agents, 202 North Delaware Avenue, Philadelphia. o12

BOYS! BOYS!

WHO WANTS A TOOL CHEST?

You can get one easily as a premium for 10 subscribers to "**The Children's Hour.**" Our Tool Chest has a lock and lifting handles, and is furnished with **fifteen** different tools, of good size and best quality. **Terms of "Children's Hour." $1 25** a year. Send stamp for specimen of "**Hour**" and Premium List

ja T. S. ARTHUR & SON, Philadelphia, Pa.

ELLIS'S

Patent Improved Boilers

AND

HOT WATER APPARATUS

For Warming Graperies, Greenhouses, Dwellings, Etc. Also,

BASE-BURNING BOILERS.

CHARLES R. ELLIS,
june6 192 Center St., N.Y.

$500 REWARD is offered by the proprietor of Dr. Sage's Catarrh Remedy for a case of "*Cold in Head,*" *Catarrh* or *Ozena,* which he cannot cure. Sold by Druggists at 50 cts

ja3

C. RAOUX,

35 Maiden Lane. P. O. Box 2956,

NEW YORK CITY,

Offers his importation of

Fresh French Pear Seed (Crop 1871.)

AND

FRENCH NURSERY STOCKS,

Apple, Cherry, Pear, Plum, Quince, Evergreens, &c., &c., &c., for sale, to arrive.

Price List sent on application.

Catalogues of

JOHN STEWART & SONS, Dundee, Scotland.
LEVAVASSEUR & FILS, Ussy, France.
D. DAUVESSE, Orleans, France.
EUGENE VERDIER FILS AINE, Paris, France.

Now ready for distribution. nov

To Farmers and Gardeners.

I invite all who have been in the habit of buying their Garden Seed from boxes left at the Stores, to give my seed a trial, side by side, and mark the difference in their germinating, and in the purity and quality of the vegetables raised from them. I have made it my mission for several years past to drive bad seed from the market, and so save farmers and gardeners the immense loss they annually suffer from the purchase of it.

The public have well appreciated my efforts, and I have now fifty thousand subscribers in the United States and Canadas. I sell no seed I do not warrant, and, what is the real pith of the matter, *I stand by my warranty;* to enable me to do this, I grow myself a large proportion of the seed I sell. Catalogue sent *free* to any applicant.

JAMES J. H GREGORY,
ja4 Marblehead, Mass.

PEAR SEED.

Just received a prime lot of

FRENCH PEAR SEED.

Price made known on application.

E. FERRAND,
ja Detroit, Mich.

BRIGGS & BROTHER'S

Catalogue of Flower and Vegetable

SEEDS,

AND

SUMMER FLOWERING BULBS, FOR 1872;

Now ready. Consisting of over 130 pages, on rose-tinted paper, with upwards of 400 separate cuts, and **Six Beautiful Colored Plates!** Cover, a beautiful design, in colors. The richest Catalogue ever published. Send 25 cents for copy, not one-half the value of the colored plates. In the FIRST order, amounting to not less than $1, the price of Catalogue, 25 cents, will be refunded in seeds. New customers placed on the same footing with old. Free to old customers. Quality of seeds, size of packets, prices and premiums offered, make it to the advantage of all to purchase seeds of us. See Catalogue for extraordinary inducements.

You will miss it if you do not see our Catalogue before ordering Seeds.

Either of our two Chromos for 1872, size 19x24—and a flower plate of Bulbous Plants, consisting of Lilies, &c.—the other of Annual, Biennial and Perennial Plants, guaranteed the

MOST ELEGANT FLORAL CHROMOS

ever issued in this country. A superb parlor ornament; mailed, post-paid, on receipt of 75c.; also free, on conditions specified in Catalogue. Address,

[*Established* 1845.] **BRIGGS & BROTHER,**
Rochester, New York.

NEW AND RARE PLANTS

FOR

SPRING OF 1872.

JOHN SAUL'S

Catalogue of NEW AND BEAUTIFUL PLANTS will be ready in February, containing a superb colored plate of a fine, new Pelargonium, mailed free to all my customers. To others, price 10 cents; or a plain copy to all applicants free.

JOHN SAUL,
ja3 Washington, D. C.

BLOOMINGTON NURSERY, ILLINOIS.

600 Acres. 21st Year. 13 Greenhouses.

10,000 Apple Rootgrafts, strong,	$50
1,000 Pear, Plum or Cherry Rootgrafts,	20
1,000 Std. Pear, extra, 1 year, 3 to 4 feet,	200
5,000 Silver Maples, average 1 foot,	10
10,000 Osage Orange Plants, 1st class,	25
5,000 Concord Grape, or Willow Cuttings,	8

100-page Illustrated Catalogue, 10 cents.

Flower and Vegetable Seeds, large stock.

Colored Plates, Fruits and Flowers, 5 samples by mail, $1.

Wholesale Price List sent free.

ja5 **F. K. PHOENIX, Bloomington, Ill.**

SEEDLINGS A SPECIALTY.

Bargains yet left for the Trade. Several of the French Pears; Siberian Arborvitæ, I. Juniper, 15 to 18 inches; American White Ash; fine N. Spruce; Catalpa Hop Tree, 1 year; Spanish Chestnut, 1 to 3 years, 1 to 3 feet, very cheap; Peach Trees at low rates.

P. H. FOSTER,
ja2 Babylon, L. I., N. Y.

Our Club Extraordinary!!

In the work of putting our popular and elegant

"QUEEN OF THE LADIES' MAGAZINES"

into 100,000 Homes, we have arranged a **"CLUB EXTRAORDINARY" with Premiums Extraordinary.** *No such offer to club-getters has ever been made!* Send stamp for specimen of Magazine and special Club Circular, and judge for yourself. Address,

ja **T. S. ARTHUR & SON.** Philadelphia, Pa.

THORBURN'S

LATE ROSE POTATOES

The finest and most productive winter sort in cultivation. This is the Potato that attracted so much attention at the New York State Fair. Descriptive Circulars and price, according to quantity, on application to

J. M. THORBURN & CO.,
ja **15 John Street, New York.**

J. J. H. GREGORY'S

Illustrated Catalogue

OF

GARDEN AND FLOWER SEEDS

FOR 1872.

Having introduced to the public the Hubbard Squash, American Turban Squash, Marblehead Mammoth Cabbage, Mexican Sweet Corn, Phinney's Watermelon, Brown's New Dwarf Marrowfat Pea, Boston Curled Lettuce, and other

New and Valuable Vegetables,

with the return of another season I am again prepared to supply the public with Vegetable and Flower Seeds of the purest quality. My Annual Catalogue is now ready, and will be sent *free* to all. My customers of last year will receive it without writing for it. It abounds in fine engravings, many of which were taken from photographs of the vegetables themselves. It has not only all novelties, but the standard vegetables of the farm and garden (over one hundred of which are of my own growing), and a carefully selected list of Flower Seeds. As stated in my Catalogue, all my Seed is sold under three warrants: 1*st. That all money sent shall reach me.* 2*d. That all seed ordered shall reach the purchaser.* 3*d. That my seeds shall be fresh, and true to name.* Catalogues free to all.

JAMES J. H. GREGORY,
ja to apl Marblehead, Mass.

GARDENER WANTED.

A first-class Gardener, to take charge of a private place; one that understands propagating, the management of a green house, grapery, &c., and a thorough knowledge of the improvement of grounds; one that can come well recommended; none other need apply. Address, J. H. DAVEY, Cincinnati, Ohio, Box No. 1350.

Index to Advertisements.

Arthur, T. S. & Son, Philadelphia..... 4 5
Bayersdorfer, M. M., & Co., Philadelphia..... 9
Bliss, B. K. & Son, New York..... 9
Briggs & Bro., Rochester, N. Y..... 5
Brinckloe & Marot, Philada..... 11
Chitty, H. B., Patterson, N. J..... 16
Clagett, John B., Brightwood, D. C..... 3
Collins, John S., Moorestown, N. J..... 4
Copeland, R. M., Philadelphia..... 11
Davey, J. H., Cincinnati, Ohio..... 5
Dingee & Conard Co., West Grove, Pa..... 7
Douglas, Robert & Sons, Waukegan, Ills..... 8
Dreer, H. A., Philadelphia..... 4
Elder, Walter, Philadelphia..... 4
Ellis, Charles R., New York..... 4
Ferrand, E., Detroit, Michigan..... 5
Fish, G. T., Rochester, N. Y..... 11
Foster, P. H., Babylon, N. Y..... 5
Great Western Gun Works, Pittsburg, Pa..... 3,4
Gregory, J. J. H., Marblehead, Mass..... 4
Heikes, W. F., Dayton, O..... 11
Henderson, P., N. Y..... 14
Herstine, D. W., Philadelphia..... 8
Hitchings & Co., New York..... 13
Hudson River Wire Works, New York city..... 2
Jenkins, J., Winona, Ohio..... 14
Jordan, J. M., St. Louis, Mo..... 11
Koons & Ruoff, Philadelphia..... 4
McIntyre, J. W., St. Louis, Mo..... 11
McKelvie, W. G., Geneva, N. Y..... 8
Meehan, Thos., Germantown, Pa..... 8
Miller & Hayes, Philadelphia..... 7
Myers, Thomas J., Philadelphia..... 15
Naturalist's Agency, Salem, Mass..... 9
Nimmo & Scollay, Brooklyn, N. Y..... 14
Olm Brothers, Springfield, Mass..... 12
Page, N., Danvers, Mass..... 8
Parry, Wm. Cinnaminson, N. J..... 10
Phœnix, F. K., Bloomington, Ill..... 5
Practical Farmer, Philada..... 8
Perry, F. L., Canandaigua, N. Y..... 11
Parry, Wm., Cinnaminson, N. J..... 10
Prairie Farmer, Chicago, Ills..... 6
Purdy, A. M., Palmyra, N. Y..... 16
Rakestraw & Pyle, Willow Dale, Pa..... 9,11
Raoux, C., New York City..... 4
Root, J. A., Skaneateles, N. Y..... 4,9
Sage, Dr..... 4
Saul, John, Washington, D. C..... 5
Schroeder, Dr. H., Blooming on, Ill..... 4
Stanley, D. C Damascoville, O..... 3
Strong, W. C. & Co., Brighton, Mass..... 3
Such, George, South Amboy, N J..... 1
Thanhauser, S., Phila..... 14
Thorburn, J. M. & Co., N. Y..... 3 5,11
Transon, P. & E., Orleans, France..... 15
Trevor & Co., Lockport, New York..... 16
Vick, Jas., Rochester, N. Y..... 16
Vreeland, S. B., Greenville, N. J..... 10
Wier, D. B., Lacon, Ill..... 16
Weekly Sun, New York..... 3

WANTED.

A COMPETENT MAN to take an interest in a small Fruit Farm, and small Fruit Nursery; must understand Propagating. State nationality and size of family. Address F. F. MERCERON, Box 10, Catawissa, Pa.

WANTED

AN Active, Energetic, Practical Man in the FRUIT, TRUCK, and NURSERY BUSINESS, on a Farm of 150 Acres, at Princess Anne, Maryland—on the Delaware and Maryland Race Course. A large amount of Peaches, Pears, Grapes, Strawberries and other Fruits in bearing; Hotbeds and Sash; large Forcing and Cold Grape Houses; NURSERY of Fruit, and other Trees. The property will be rented on SHARES for one year on trial, with STOCK, &c.: with or without the Nursery, as may be desired. Fruit and Market train to Philadelphia and New York daily at all seasons.

☞ Also, a smaller FRUIT and TRUCK FARM for Rent.

Address J. RUTTER, West Chester, Pa.

SITUATION WANTED.

BY a single young man, as Propagator, or Plant Grower; well acquainted with all classes of plants; ten years experience in principal Nurseries in England and America. Address T. S., Box: Cambridge P. O., Mass.

BY a young man, unmarried, a Nurseryman by profession fully competent in all its various branches. Twelve years experience in one of the best Nurseries in the United States. The best of reference given. Address T. A. K., No. 28 Martin Street, Rochester, New York.

BY a Practical Gardener and Florist, who has a thorough knowledge of Growing and putting up of Flowers in all the newest styles. Has had charge of Flower and Seed Store during the past three years. Can give the best of reference to those requiring a first-class hand at good salary. Address FLORIST, care of Critchel & Gardener, 193 West Fourth Street, Cincinnati, Ohio. jan 1t

BY a single young man, as Gardener; competent to take charge of Greenhouses, Hothouses, Graperies and Vegetables for a private family. Can give good reference. Apply to H. ROSENMUND, care of T. Kaupp, 409 Tasker Street, Philadelphia.

BY a First-class Gardener, English; is a good Propagator, a good Grower of Stove and Greenhouse Plants: also Fruits and Vegetables. Experience in Nurseries and private places as Foreman. First-class reference. Address FLORIST, Morgan's Corner P. O., Delaware County, Pa.

FRUIT RECORDER

AND

COTTAGE GARDENER,

A. M. PURDY, - - Editor.

A Monthly Paper of 16 Pages, Devoted Solely to Fruits, Flowers and Vegetables, at only $1 per year.

It is edited by a person who has had a life-time of *Practical* experience, and who now has under cultivation Two HUNDRED ACRES OF SMALL FRUITS, besides over Four Thousand Fruit Trees in Orchard Form, and an immense amount of Glas Forcing Houses, Ornamental Grounds, &c., &c. He takes, or exchanges for over *thirty* Agricultural and Horticultural papers, besides reading the most practical books on these subjects, and from his extensive practical experience endeavors to copy into the RECORDER only such matters as will prove of *practical* benefit to its readers. Thus you get for the small sum of $1 00 the *cream* of these papers, besides the long experience and observations of the Editor. For years, as we have been engaged in the business of Fruit-growing, here and in Indiana, we have been obliged to take eight or ten papers to get such information as we desired to assist us in our business, gleaning a little from this paper and from that. It is a well-known fact that most of the horticultural papers are jealously careful not to copy articles from other papers, no matter how valuable, fearing by so doing that they will advertise the merits of such paper, and detract from their boasted originality. Now, we don't profess so much knowledge or originality as to throw aside original matter of this kind, but shall "cut and slash" wherever we can find valuable matter, copying such, and of course giving proper credit. We also have articles in every number from some of the most practical Fruit Growers in the United States. The two to three pages of "*Questions and Answers*," besides the Editor's "*Walks and Jottings over the Fruit Farms*," have given such universal satisfaction that they will be continued; also, "*Prof. Keen Eye's Observations*" will take up a certain space.

Many suppose it is impossible to have a good practical paper printed outside of certain cities. We simply ask such to send for a specimen copy of the RECORDER, (sent *free* to all applicants,) and let *it speak for itself*. We think it will satisfy you that a person can be *practically* engaged in this business and yet edit a presentable paper. Over one thousand testimonials, received the present year, claim for *it the best* paper extant on Fruit Growing, Flowers, and the Kitchen Garden. One prominent horticulturist writes us: "The RECORDER grows better and better. It is filled brim full of practical matter every month." Another says: "The RECORDER is as full of practical subjects as an egg with meat."

We urge upon all, before subscribing, or renewing for any other horticultural paper, to send for a specimen copy. Our premiums, in *cash* or *plants*, are *very liberal* to those who wish to in as Agents in procuring subscribers. We have also a copyright act of 64 pages, entitled "THE SMALL FRUIT INSTRUCTOR," price 25 cents. It tells how to grow, either for home use or market, in abundance, Strawberries, Raspberries, Grapes, Currants, &c. Any one sending us their subscription this month for the RECORDER, with $1 00, either for the current volume (1871), or the volume for 1872, will (if requested) receive a copy of the INSTRUCTOR *free*.

We club with THE GARDENER'S MONTHLY, sending both it and the RECORDER for $2 00 per year.

Address,

A. M. PURDY,
Palmyra, Wayne Co., N. Y.

TO ALL WHO CAN READ.

THE WEEKLY SUN DOUBLED IN SIZE WITH OUT INCREASE IN PRICE.

With the beginning of the year 1872 THE WEEKLY SUN will be double its present size, and will contain eight pages instead of four, making it equal in dimensions to any other weekly secular journal published in this country. At the same time its price will not be increased. It will be furnished to subscribers at the uniform rate of one dollar a year for each copy. To this rate no exception will be made and no reduction will be possible, either to clubs or agents. Every subscriber who sends a dollar will receive a copy for a year.

While THE WEEKLY SUN will thus furnish as much reading matter as other papers published at double or treble the price, it will contain new features which will add greatly to its interest and value as a family newspaper Its independence of opinion and its unqualified hostility to Tweedism and Grantism, and every form of public robbery, bribery and corruption, will be maintained; while, in point of political news, its readers may rely upon always receiving the most accurate—as well as the freshest—intelligence that can possibly be obtained. The enlargement will enable us also to devote additional space to valuable agricultural intelligence, and to print interesting stories and romances more extensively than hitherto. For miscellaneous reading presenting the quaint and humorous aspects of life, and for useful information, respecting not only what takes place in this metropolis and this country, but in all other parts of the world, we shall now have ample room.

In its new form, THE WEEKLY SUN will be the cheapest paper of its class in the United States; and we appeal to such of our readers as approve its ideas and objects, and find it interesting and valuable, not only to renew their own subscriptions, but to recommend the paper to their friends and neighbors.

The coming year is destined to be a memorable one in the history of the country. We are on the eve of a most significant Presidential election, and political movements will, for many months, be watched with unusual interest. As a journal, free from the trammels of party, THE WEEKLY SUN will continue to uphold the principles of true Republican Government. Its readers are invited to sustain it in that work. The truth, irrespective of party prejudice or official influence, will always be told in its columns.

TERMS OF THE WEEKLY SUN:

A journal containing eight large pages, published every Wednesday morning—To all mail subscribers, whether single or in clubs, *One Dollar a year, each;* always in advance.

DAILY SUN, by mail, 50 cents a month, or $6 a year.

SEMI-WEEKLY SUN, by mail, $2 a year.

Address: THE SUN, New York city. ja-1t

2,000 000 APPLE SEEDLINGS,

First Class, at lowest rates. Samples sent by mail.

Also,

ROOT-GRAFTED APPLE GRAFTS,

All at very low prices. Address,

ja-2t G. PETERS, New Carlisle, Ohio.

800,000 DECIDUOUS TREES.

400,000 SUGAR MAPLE, from 6 inches to 10 feet high.
300,000 SILVER MAPLE, from 6 inches to 10 feet high.
100,300 LINDEN, CHESTNUT, DOGWOOD, WHITE ASH, BLACK WALNUT, &c.
200,000 OSAGE ORANGE PLANTS. 40,000 PEACH TREES.
Some Nursery Stock wanted in exchange.
Send for Price List.

ja-tf B. C. STANLEY, Damascoville, Ohio.

FOR RENT.

The best FRUIT FARM in the District of Columbia, five miles from the Market-House at the head of First street, in the city of Washington; well stocked with Apples, Pears, Peaches, Grapes, Lawton Blackberries, Strawberries and Gooseberries, now in good bearing condition.

To a competent person a great inducement will be offered, either on shares or money rent.

References given and required.

For further particulars, apply to

JOHN B. CLAGETT,
Brightwood,
ja D. C.

New and Rare Vegetables.

I make the seed of New and Rare Vegetables a specialty. Catalogues sent free to all. My customers of last year will receive it without writing for it.

JAMES J. H. GREGORY,
ja5 Marblehead, Mass.

NEW PLANTS.

Having visited all the prominent establishments in Europe during the past season, we are enabled to announce that we have selected a considerable number of exceedingly effective NOVELTIES, which, we are confident, will prove to be important additions in this country. Many of these are decidedly superior to anything we now have in the same line.

Priced Catalogues ready February 1.

W. C. STRONG & CO.,
ja2 Brighton, Mass.

TO THE SEED TRADE.
1872.

Our Wholesale List of Garden, Field and Flower Seeds, as also Spring Bulbs, for the Trade only, is now ready for mailing to applicants.

J. M. THORBURN & CO.,
ja 15 John Street, New York.

BETTER STILL FOR 1872.

Page's Portable Pump, Plant Syringe and Fire extinguisher, with *metal boxes*, and otherwise improved, for $5. Adapted for universal use. Send for circular.

N. PAGE, JR.,

dec 2 Danvers, Mass.

THE

"PRACTICAL FARMER"

NOW IN ITS EIGHTH YEAR.

Published in Philadelphia, monthly, at $1.50 per annum in advance, by PASCHALL MORRIS & CO.

It is recommended to Farmers in every section of the Union as a thoroughly reliable and well illustrated

AGRICULTURAL AND HORTICULTURAL JOURNAL.

It is chiefly made up of original matter, embracing Stock Raising, Grain Growing, the Dairy, Orchard, Vegetable and Market Gardening, Grazing, Rearing and Fattening Animals, a Veterinary Department. Also, the Ornamental Surroundings of the Farm, Buildings, &c., with regular articles on Household Economy and Miscellaneous Matter.

We will furnish the *Gardener's Monthly* and *Practical Farmer* for $2 50.

Large inducements and liberal premiums offered to Agents and Canvassers. Sample copies with suitable show bills furnished on application to

PASCHALL MORRIS & CO.,

Office of "*Practical Farmer*,"

dec 2 No. 18 N. 13th St., Philada.

Seeds of Fruit Trees and Ornamental Shrubs.

Our list for this season will contain all the leading kinds in cultivation; besides many that are new or rare. Amongst the popular things will be found White Spruce, Hemlock Spruce, Norway Spruce, Balsam Fir, Silver Fir, Cephalonian Fir, Nordmann Fir, Cryptomeria Japonica, Lawson Cypress, Southern Cypress, White Cedar, Chinese Arborvitæ, American Arborvitæ, English Holly, Pinus Pungens, the rare table-mountain Pine, Austrian Pine, Scotch Pine, White Pine, Pitch Pine, Mountain Pine, European Larch, Norway Maple, Sycamore Maple, English Maple, Sugar Maple, Red Maple, Oregon Maple, Ashes, Catalpa, Ailanthus, Buckthorn, Birches of every variety, Dogwood, Laburnum, Lindens, Honey Locust and Osage Orange, Tulip trees, Magnolias, Paulownia, Yellow Locust, Mahonia, Judas tree, and many others.

Amongst fruits, Apple, Pear Quince, Peach, English and Black Walnut. Peach Stones we sell very low when ordered in large lots.

THOMAS MEEHAN,

Germantown Nurseries,

near Philadelphia, Pa.

Young Seedling Trees in Large Quantities.

My Spring wholesale list will contain a large variety of rare and popular trees and shrubs,—among others many kinds of Ashes, Norway, Sycamore, Red, Silver, Sugar, cork-barked, purple-leaved Sycamore, and Red Colchican Maples; the new and striking Japan Catalpa, Horse Chestnut and the early-flowering Æsculus glabra, Kœlreuteria, Magnolia tripeleta; Oaks of various kinds; Paulownia; Tulip tree, Cottonwood and Silver Poplars; Weeping Willows; Dogwood, Hornbiam, Magnolia glaucs; Ibex opaca or American Holly; Pyrus Japonica, Mistle-tree; Spiræas of 20 kinds; Wiegelia rosea and amabilis; Snowberries. Among ornamental vines will be found Akebia quinata, Ampelopsis hederacea and Vietelin; Bignonias, Clematis; Ivies of many kinds; Honeysuckles, yellow and scarlet Coral; sweet monthly Belgian and Halls; the Japan and Chinese Evergreens; besides, a limited supply of the beautiful *Magnevillæ* Honeysuckle; Jasmines, Vincas and Wisterias in large quantities.

Amongst the evergreens will be found the beautiful *Libocedrus decurrens*, grafted on a stock which will enable it to transplant well. The beautiful Japan Retinospora obtusa, Globe Arborvitæ, Booth's dwarf, Siberian, American, and other Arborvitæs, and especially a fine lot of *Yucca filamentosa*.

In Hedge Plants we have a fine stock of the *white-berried Pyracantha*, which undoubtedly is

THE COMING HEDGE PLANT OF THE UNITED STATES.

As well as Buckthorn, Silver Thorn, and an immense quantity of one and two year Osage Orange.

Of fruits, our catalogue will contain a great variety of stock well suited to buyers, and especially dwarf and standard Apple trees, 1, 2, 3, and 4 years; Dwarf and Standard Apple Stocks; Dwarf and Standard Pears; Apricots, Nectarines, Currants, Persimons, Walnuts, Chestnuts, and President Wilder Strawberries.

Among miscellaneous plants of this season's offering in large quantities the catalogue contains Asparagus, Boxedging, Gladiolus, Dahlias, Tuberoses, Rhubarb, &c.

Among the specialties of this season's catalogue is a list of small plants, which in tens or hundreds

CAN BE SENT BY MAIL,

and thus hundreds receive plants independent of having express charges. In this way we will send this spring by mail free

THE BLOOD LEAVED PEACH.

For $1 each, or six plants for $5—plants in the bud. This has leaves as dark as the *Blood-leaved Beech*; and having as well excellent fruit, will command a universal sale. Every nurseryman can get it in this way by mail.

Send for catalogue.

THOMAS MEEHAN,

GERMANTOWN NURSERY,

3t near Philadelphia, Pa.

EVERGREEN AND EUROPEAN Larch Seedlings.

12,000,000 European Larch Seedlings.
8,000,000 Evergreen Seedlings.
3,000,000 Small transplanted Evergreens.
200,000 Transplanted Larches.
200,000 Seedling and Transplanted Mountain Ash

The above are all grown from seed on our own grounds, and are better and cheaper than Imported Stock. ☞Send for Catalogue

ROBERT DOUGLAS & SONS.

aug8 WAUKEGAN, ILLINOIS.

COLLAR GRAFTS. WHOLE ROOTS.

Leading Varieties put up to order, in the best manner. Samples, 20 cents. Prices free.

W. G. McKELVIE,

ja feb Geneva, N. Y.

Rare and Beautiful Flowers
and Choice Vegetables
CAN ALWAYS BE OBTAINED BY SOWING

B. K. BLISS & SONS,
23 PARK PLACE, & 20 MURRAY ST., N. Y.
IMPORTERS, GROWERS, AND DEALERS IN
Garden, Field, and Flower Seeds,
SMALL FRUITS,
AGRICULTURAL AND HORTICULTURAL IMPLEMENTS,
Fertilizers, and Other Requisits for the Farm and Garden.

The *Eighteenth Annual Edition* of their celebrated *Seed Catalogue and Amateur's Guide to the Flower and Kitchen Garden*, will be ready for distribution early in January, and mailed to our customers of 1871 as rapidly as possible, and to all applicants, upon receipt of 25 cents: an edition beautifully bound in cloth, 75 cents. This is, without exception, the largest and best Catalogue ever published in this or any other country. It will contain nearly 200 pages, including many finely executed engravings of favorite flowers and vegetables, and a beautifully colored chromo of a group of twenty of the most popular flowers in cultivation. Also a descriptive list of 2,500 species and varieties of flower and vegetable seeds, including all the novelties of the past season, with full directions for culture. Address

B. K. BLISS & SONS,
ja2 P. O. Box 5,712 New York City.

Willow Dale Nurseries.

A General Assortment of Nursery Stock,
THRIFTY and WELL-GROWN,
For Spring of 1873.
Specialties of Apple and Peach Trees and Osage Orange.

Address,
RAKESTRAW & PYLE,
jan3 Willow Dale P. O, Chester Co., Pa.

APPLE SEED.

Prime New Seed in Large or Small Quantities, at
$8.00 PER BUSHEL,
(Bags Free.)
JAMES A. ROOT,
jan SKANEATELES, ONONDAGA CO., N. Y.

M. M. BAYERSDORFER & CO.

IMPORTERS OF
BOUQUET PAPERS
OF EVERY DESCRIPTION,
Fancy Lace, Wedding, Plain and Ornamental, Italiens, Carton Pasted, &c.
Gold, Gelatine, Fancy, Morocco, Glazed and Enameled Papers. Metal Leaf. Fancy Boxes, Pictures, Reliefs, &c.

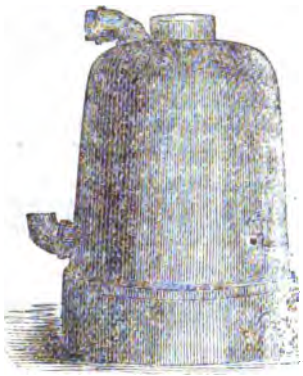
july12 No. 142 NORTH FOURTH STREET, Philadelphia, Pa.
N. B.—We keep a large stock always on hand, and receive new styles constantly.

THE
NEW SEEDLING RASPBERRIES,
"HERSTINE" AND "SAUNDERS."

Grown from the Seed of the "ALLEN," planted in alternate rows with the Philadelphia, and doubtless a cross between those two perfectly hardy, native varieties; having the color and flavor of the Allen, the productiveness of the Philadelphia, with much larger size and more firmness, and the hardiness of both. The "HERSTINE" having stood uninjured, without any protection, five Winters; and the "SAUNDERS" four.

A limited number will be for sale during the coming Fall at
$1 each; $10 per dozen; $75 per 100.

Orders will be booked as received, and filled, after September 15th, in rotation. Address,
D. W HERSTINE,
augtf No. 5 South 10th Street, Philadelphia, Pa.



NIMMO & SCOLLAY,

IMPROVED

HOT WATER APPARATUS

FOR

WARMING & VENTILATING

Dwellings, Greenhouses, Graperies, Forcing Pits, Drying Room, Heating Water for Public Baths, &c.

This Boiler is perfectly self-cleaning, Simple, Economical and Powerful, having more effective surface in less space than any Boiler in the Market.

july12] **351 ADAMS STREET,**

(Patent Applied for.) **BROOKLYN, N. Y.**

JENKINS' GRAPE AND SEEDLING NURSERY.

400,000 SUGAR MAPLES

The most beautiful SHADE TREE grown. Every size, from 4 inches to 10 feet. Other Nursery Stock wanted in exchange.. 300,000 White Ash, Magnolia, Linden, Beech and Tulip Tree seeplings; 200,000 Grape Vines. 100,000 Asparagus. 200,000 Osage Orange. 200,000 Apple Seedlings. Root Grafts put up to order, in best manner, Magnolia Seed $1 25 per lb. Apple Seeds by lb. or bush. *Best of Stock. Lowest Price.* Send for List. Address,

sep3 **J. JENKINS, Box 45, Winona, Col. Co., Ohio.**

NEW PLANTS! NEW SEEDS!

By Mail, or by Express.

OUR PLANT & SEED CATALOGUES FOR 1872,

Numbering 175 pages, and containing two colored plates, worth twice the cost of Catalogues are now ready and will be mailed to our customers of past years as usual; to others on receipt of twenty-five cents.

Peter Henderson & Co.

SEEDSMEN, MARKET GARDENERS AND FLORISTS,

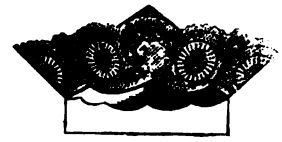
35 Cortlandt Street, New York.

NEWEST STYLES

BOUQUET

PAPERS

In every size & quality



FANCY PAPERS,

BOXES,

PICTURES, &c.

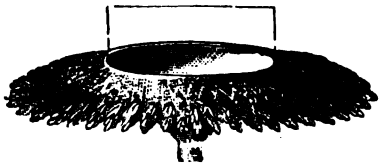
Imported by

S. THANHAUSER,

[Successor to H. Berliner,]

No. 318 **Race St.,**

PHILADELPHIA PENNA.



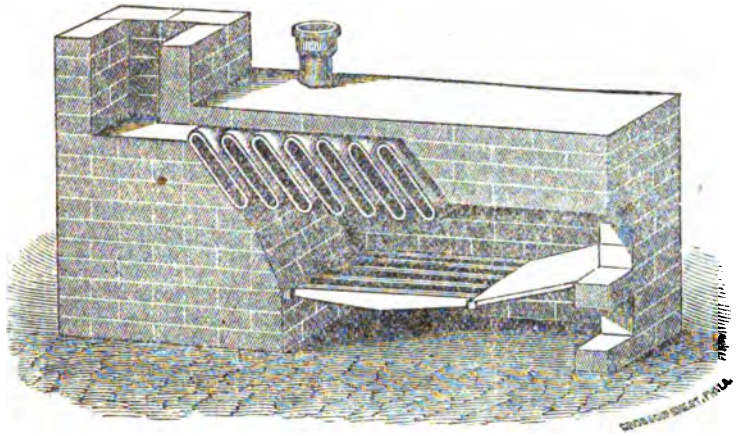
[july12

ESTABLISHED 1851.

THOMAS J. MYERS'

Patent Boiler & Improved Hot Water Apparatus,

For Warming and Ventilating Greenhouses, Graperies, Conservatories, &c.
Also, Public and Private Buildings.



The Advantages are:

The large amount of heating surface, they having twice the amount of any Boiler now in use; the facilities for cleaning, economy in fuel and space, and requiring very little attention. Also, their durability,—they have no complicated flues to impede the draught, and are equally well adapted to work with or without a flue.

Our smallest Boiler has 10 feet of heating surface exposed to the direct action of the fire, with only 1 foot of grate surface. They are also the cheapest Boiler in the market.

Circulars, with full description and Price List, furnished on application. Also, estimates given.

THOMAS J. MYERS,
sep4 **1162 Passyunk Avenue. Philadelphia, Penna.**

P. & E. TRANSON,

NURSERIES,

Orleans, France,

Beg to inform their friends and customers generally that the r

NEW LIST FOR 1871--72

is now ready, and may be had on application to

MESSRS. KNAUTH, NACHOD & KUHNE,

51 Broad Street, New York.

This Catalogue contains prices of all the Fruit Tree Stocks, an extensive list of Fruit Trees, New and Hardy Ornamental Plants, Climbers, the Hardiest and Best Conifers, Roses on their own roots. Also, Small Conifers, Deciduous and Evergreen Ornamental Trees, one or two years' seedlings, most useful for Nurserymen.

N. B.—The greatest attention is given to the packing.

NATURAL HISTORY. THE MOST POPULAR STUDY OF THE DAY.

The American Naturalist, a Popular, Illustrated Monthly Magazine of Natural History.

The NATURALIST is now in its fourth year, and is a handsomely printed Magazine, on extra paper and clear type. Each number contains 64 pages, large 8vo, and many Illustrations. The leading articles are written by authorities on the subjects treated of, and the Miscellany contains many interesting notes on Zoology, Geology, Botany, Microscopy, Archæology and Ethnology, Reviews of recent Books on Natural History, Abstracts of Papers read before Scientific Societies. Notices of Important Discoveries, Answers to Correspondents, etc., etc., are also given in each number. In fact it is the aim of the Editors to make each number of the NATURALIST an indispensible work to all who wish to keep posted in matters of Natural History.

Subscription, $4.00 a Year, in Advance. Single Number, 35 Cents.

The three Volumes of the *Naturalist*, bound in extra cloth, Gilt Title, and Subscription to Vol. IV, $14.00; or, the four Vols., unbound, $12.00. Single Volumes, bound, $5.00; unbound, $4.00. Published by the

PEABODY ACADEMY OF SCIENCE, Salem, Mass.

N. B.—The *Naturalist* will be furnished at regular rates at the Office of the *Gardener's Monthly*.

"CERTAINLY THE BEST MANUAL OF ENTOMOLOGY WHICH THE ENGLISH READER CAN AT PRESENT OBTAIN"—Nature, London.

"THE ONLY AMERICAN TEXT-BOOK OF ENTOMOLOGY"

A GUIDE TO THE STUDY OF INSECTS.

BEING A POPULAR INTRODUCTION TO THE STUDY OF ENTOMOLOGY, AND A TREATISE ON INJURIOUS AND BENEFICIAL INSECTS, WITH DESCRIPTIONS AND ACCOUNTS OF THE HABITS OF INSECTS, THEIR TRANSFORMATION, DEVELOPMENT AND CLASSIFICATION.

By A. S. PACKARD, Jr., M. D, Curator of Articulata at the *Peabody Academy of Science*, Lecturer on Entomology at the *Mass State Agricultural College*, and Entomologist to the *Mass. State Board of Agriculture*

CONTAINING 700 PAGES, 11 FULL PAGE PLATES, AND 651 CUTS IN THE TEXT, EMBRACING 1235 FIGURES OF AMERICAN INSECTS.

In a large octavo volume, printed on extra paper and in full cloth binding (colors, brown, green and claret).

Price, in Full Cloth Binding, $6.00.

"We have seldom fallen on so thoroughly good a scientific treatise as the one whose features we have briefly sketched, and we can only conclude our notice of it by advising all our natural history readers to make its acquaintance. There is no work we should prefer to it as a book for the student, for it is a treatise which displays an absolute avoidance of mere compilation, and it is pervaded by such a tone of earnestness, and contains so many original observations, that the reader is inducted by it out of the usual book-land of idealism into the substantial region of actuality and fact"—*Scientific Opinion*, London.

"It is one of the fruits of the Peabody Academy of Science, and in every particular of text, illustrations, and manufacture, is thoroughly well done. We are glad to learn through the *American Naturalist*, that the first edition has been exhausted, and that the "GUIDE" is already in use as a text-book. The practical side of it will in time ensure its purchase by most intelligent farmers and gardeners, for whom an entomological calendar is affixed, that should prove a useful warning against insect pests."—*The Nation*.

"Altogether, we are immensely pleased with this work. It is assuredly all in all the fullest, most modern, and most clearly written treatise on insects we have ever seen."—*Popular Science Review*, London.

"As a practical treatise on American Entomology, with reference especially to the insects injurious and beneficial to crops it stands almost alone, and reflects the highest credit upon American scholarship, patience and scientific skill."—*N Y Tribune*.

"It is from the press of the Essex Institute, Salem, Mass, and like *The Naturalist*, which we have more than once introduced to our readers, it is one of the most beautiful specimens of typography and illustrations that our country produces. The work itself is thoroughly scientific, but not so as to reveal its information only to scientific men. It is a treatise which any intelligent farmer may study with pleasure and profit, and one which will at the same time greatly edify even the learned naturalist."—*New York Observer*.

"The *American Naturalist* is an elegantly printed and ably conducted magazine, which we have already had occasion to notice as from the press of the Peabody Academy, of Salem. One of its editors is the author of this "GUIDE TO THE STUDY OF INSECTS," and the elegant typography and illustrations, so characteristic of that magazine, and the zeal and scholarship of Mr. Packard, makes this by far the best work in the language on this subject. The study of insects is becoming the most popular branch of natural history."—*New York Independent*.

Published by the NATURALIST'S AGENCY, Salem, Mass.

N. B.—This work will be supplied at publisher's price at the office of the *Gardener's Monthly*.

"A GREAT AID TO ALL INTERESTED IN ENTOMOLOGY.

THE RECORD OF AMERICAN ENTOMOLOGY

A YEAR BOOK OF PROGRESS IN AMERICAN ENTOMOLOGY

Edited by Dr. A. S. PACKARD, Jr., with Contributions from Dr. J. L. LeConte, Dr. H. Hagen, Mr. S. H. Scudder, Mr. P. R. Uhler Baron R. Osten Sacken and Dr. G. H. Horn.

The Record for 1868, 8vo. Pamphlet, Price.....$1 00

do do 1869, do do 1 00

Published by the NATURALIST'S AGENCY, Salem, Mass.

N B.—The Record will be furnished at regular price at the office of the *Gardener's Monthly*.

"THE STANDARD WORK ON NORTH AMERICAN BIRDS."

THE BIRDS OF NORTH AMERICA, by Baird, Cassin, and Lawrence.

With an Atlas of 100 Colored Plates.

2 Vols., 4to., in Full Muslin Binding.

Price for the complete Work $20; or for volume of Atlas $16, of Text $5.

The present work is, in part, a reprint of the General Report on North American Birds presented to the Department of War, and published in October, 1858, as one of the series of "Reports of Explorations and Surveys of a Railroad Route to the Pacific Ocean." In these volumes, however, will be found many important additions and corrections. The Atlas contains 100 plates representing 148 new or unfigured species of North American birds. Of these plates about 50 appear for the first time having been prepared expressly for this work. The remainder form the ornithological illustrations of the Reports of the Pacific Railroad and United States and Mexican Boundary Surveys, and are distributed throughout the numerous volumes composing those series. All have, however, been carefully retouched and lettered for this edition, and quite a number redrawn entirely from better and more characteristic specimens. In fact, the plates have been prepared expressly for the present edition with the utmost care.

And embrace one hundred species of Birds not figured by Audubon.

In the volume of text will be found a complete account of the birds of North America, brought down to the present time including accurate descriptions of all known species; their arrangement in the genera and families recognized by modern zoologists; their geographical distribution; and, as far as possible, all other information necessary to a complete summary or manual of North American ornithology. No other work extant gives a complete ornithology of our country; and it has been the especial object of the authors and publishers to adapt it to the wants of the student and lover of nature, and to present, in a condensed form, and at a price within the reach of all, a reliable text-book in this favorite department of natural history. Extended bibliographical notices, embracing full references to very nearly all authors on American ornithology, have been added, and will be found to be of high interest to the student and naturalist.

Published by the NATURALIST'S AGENCY, Salem, Mass.

N. B. This valuable work will be furnished at above prices at the office of the *Gardener's Monthly*.

PATENT BOILERS,

AND

IMPROVED HOT WATER APPARATUS,

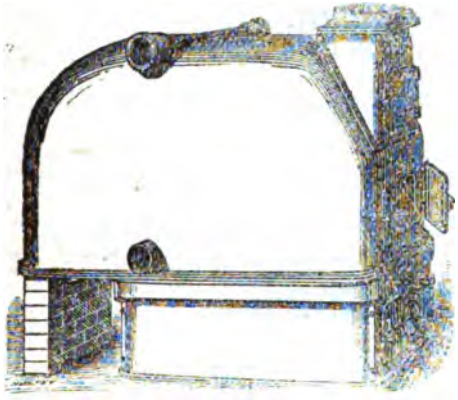
FOR WARMING

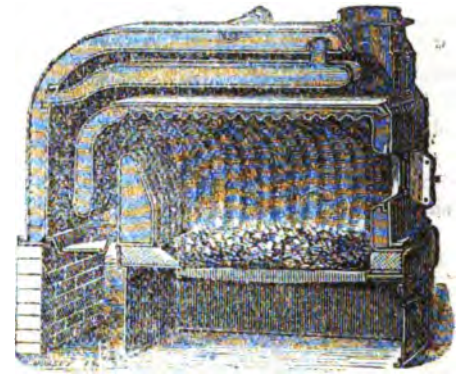
Greenhouses, Graperies, Propagating Houses, &c.

HITCHINGS & CO.

ESTABLISHED 1844,

Manufacture four sizes of Corrugated Fire-Box Boilers, five sizes of Conical Boilers, four sizes of Saddle Boilers. Also, Heating Pipes, Expansion Tanks, Vapor Pans, Stop Valves, Pipe Fittings, Furnace Fronts, &c., &c.





The Corrugated Fire-Box Boilers, patented 1867, are unequalled for their great Heating Power, with great Economy in Fuel, Durability, Compactness and Simplicity; they do not require Brick Work in setting, and are complete in every respect and ready for the Pipe connections as they leave the Works.

REFER TO

Peter Henderson, South Bergen, N. J.
Isaac Buchanan, Astoria, L. I., N. Y.
James H. Park, Brooklyn, L. I., N. Y.
John Cadness, Flushing, L. I., N. Y.
S. B. Vreeland, Greenville, N. J.
John Bradshaw, Sing-Sing, N. Y.
Galvin & Geraghty, Newport, R. I.
George E. Waring, Newport, R. I.
W. S. Hogg, Providence, R. I.
Alfred Whiting, Hartford, Conn.
W. C. Strong, Brighton, Mass.
Dexter Snow, Chicopee, Mass.
A. F. Chatfield, Albany, N. Y.
Graves, Selover, Willard & Co., Geneva, N. Y.
Ellwanger & Barry, Rochester, N. Y.
George W. Campbell, Delaware, Ohio.
F. K. Phœnix, Bloomington, Ills.
J. M. Jordan, St. Louis, Mo.
Henry Shaw, St. Louis, Mo.
T. B. Jenkins, Supt., Chambersburg, Penna.

William C. Wilson, Astoria, L. I., N. Y.
Bennett & Davidson, Flatbush, L. I., N. Y.
Andrew Bridgeman, 678 Broadway, N. Y.
Parsons & Co., Flushing, L. I., N.Y.
George Such, South Amboy, N. J.
Stephen W. Underhill, Croton Point, N. Y.
Samuel Smith, Newport, R. I.
Mallory & Downs, Norwalk, Conn.
T. O'Connor, Providence, R. I.
James H. Rauney, Hartford, Conn.
John Galvin, Boston, Mass.
Charles J. Powers, South Framingham, Mass.
Smith, Clark & Powell, Syracuse, N. Y.
W. & J. Smith, Geneva, N. Y.
Frost & Co., Rochester, N. Y.
Ferrand & Osborn, Detroit, Mich.
L. Ellsworth & Co., Naperville, Ills.
C. Young & Sons, St. Louis, Mo.
S. W. Woodward, Eau Claire, Wis.
James Fleming, Toronto, Canada.

☞ SEND FOR CIRCULAR.

HITCHINGS & CO.,

153 CROSBY STREET, NEW YORK.

June

MY SPRING CATALOGUE FOR 1872.

OF

NEW AND RARE

Bedding, Flower-Garden and Greenhouse PLANTS,

Will be Ready about the 1st of February, and will be sent FREE to all applicants.

In it I would call especial attention to my large stock of my

White Bouvardia Vreelandii,

THE BEST WHITE WINTER BLOOMING PLANT GROWN, which I will be able to sell at very low prices this season.

Also, to my large stock of **VERBENAS** which are in a healthy condition, and of the best growing and blooming varieties.

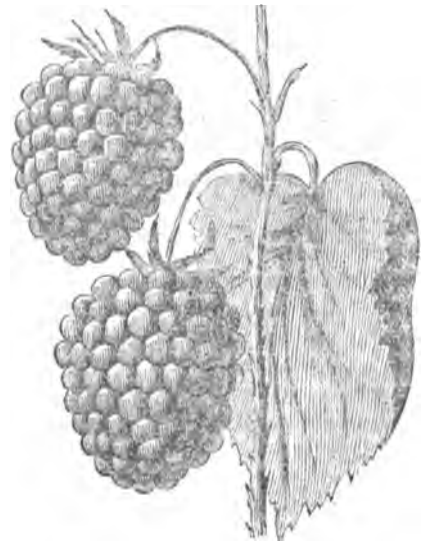
I would also call the attention of the *Trade or Dealers in Plants* particularly to this Catalogue, as the prices of plants by the quantity are unusually low, (especially for plants in 2 in. pots in February, March and April.) Address,

S. B. VREELAND.

jan Greenville, Hudson Co., New Jersey.

HERSTINE.

THE LARGEST, HANDSOMEST,



Most Productive AND THE BEST

HARDY RED RASPBERRY.

Yielding three to four quarts per Stool, and brought Sixty cents per quart in market.

IMPERIAL ASPARAGUS,

The Largest and **BEST CONOVER'S COLOSSAL**, very fine.

Strawberries, Blackberries, Currants, Gooseberries, Rhubarb, Apple, Peach, Pear, Cherry, and Ornamental Trees.

☞ Send For Catalogues. jan3 **WILLIAM PARRY**, Cinnaminson, N. J.

WANTED—A BOOKKEEPER.

Must be well-informed in the Commercial transactions belonging to a Wholesale Establishment.

He must be well acquainted with the name of trees and plants and Nursery phrases, and have an office experience.

To a competent person liberal wages will be given.

W. F. HEIKES,
jan Dayton, O.

WANTED

Back Numbers of the Gardener's Monthly,

AS FOLLOWS:

April, 1860.

January, March, July, October and Dec., 1870

Address, **BRINCKLOE & MAROT,**
23 North Sixth Street, Phila.

Tree Seeds and Stock Specialties.

Plum Stocks, Quince stocks, Mazzard Stocks,
Pear Stocks, Mahaleb Stocks, Apple Stocks.

A general assortment of nursery stocks and goods.

A large supply of the following offered at reasonable prices, and warranted genuine.

Delaware Vines, mostly layers; Currants, Cherry, Victoria, &c.; Currant cuttings—*price reduced.* Anger's Quince cuttings and stocks.

Send for price list, and write for special rates on Currant cuttings.

NURSERY EXCHANGE,
35 Arcade, Rochester, N. Y.

GEO. T. FISH,
Executor of West Avenue Nurseries.

LANDSCAPE GARDENING

AND

RURAL IMPROVEMENTS.

ROBERT MORRIS COPELAND, Author of "Country Life," furnishes advice and plans for laying out villages, systems of roads and drainage for towns, parks, cemeteries, country places, village gardens farms, commons, ornamental walks, &c.

He also furnishes lists of trees and shrubs for any particular purposes, and detailed plans and specifications for all kinds of horticultural and agricultural structures, fountains, vases, arbors, bridges, greenhouses, &c. He refers to:

William Sellers, Philadelphia.
Samuel M. Felton, "
Isaac Hinckley, "
O. S. Hubbell, "
Rev. E. T. Fletcher, Indianapolis, Ind.
Francis C. Shaw, Staten Island, N. Y.
J. Herbert Shedd, Chief Engineer Water Works, Providence, R. I.
Louis Dexter, Providence, R. I.
Prof. H. W. Longfellow, Cambridgde, Mass.
Prof. James R. Lowell, " "
Prof. Wm. B. Rogers, Boston, Mass.
John M. Forbes, " "
Nathaniel Thayer, " "
Furness & Hewett, Architects.

E. W. BOWDITCH, Topographical Engineer & Surv'r
OFFICES—N. E. Cor. 3d & Chestnut Sts. Phila
40 Barrister's Hall, Boston, Mass

J. M. Jordan's Nursery & Greenhouses.

THE largest and most complete assortment of Trees, Vines, Shrubs and Plants in the West. **175 Acres in Trees.** 10,000 feet of glass in the Ornamental Department. Can fill orders at Retail or Wholesale. Send for Catalogues, stating what you wish to buy.

HORTICULTURAL STORE,
augtf 612 Olive Street, St. Louis, Mo.

AMERICAN SUNDAY SCHOOL WORKER. An Evangelical, Undenominational Monthly, with Sunday School Lessons, Exposition, Illustrations, Questions, Blackboard Exercises &c., for each Sabbath.

Send Ten Cents for Specimen Copy Lesson Paper, and our own List of **LESSONS for 1872, and Club Rates.** Terms, for 1872, **$1 50** per year, in advance.

Scholar's LESSON PAPER, Monthly, with Lessons for every Sabbath, **12 cts.** a year; or, per 100, **$9** a year. Address,

ja **J. W. McINTYRE,** Publisher, ST. LOUIS, MO.

FRESH

GARDEN SEEDS.

Our annual descriptive priced Catalogue of Garden, Field and Tree Seeds is ready for mailing free.

J. M. THORBURN & CO.,
ja2 **15 John St., New York.**

Wanted! Wanted!

Purchasers for the following, at low rates for Cash.

20,000 2 yr. Asparagus,
50,000 Osage Orange, 2 yr.
1,000 American Arborvitæ, 18 to 36 in.
1,000 2 yr Ives' Seedling Grape Vines,
Apple Trees, 3 and 4 yrs.
Cherry Trees, 1 and 2 yrs.

ADDRESS,

RAKESTRAW & PYLE,
Willow Dale, P. O.
jan3 Chester Co., Pa.

Peach Trees Wanted

IN EXCHANGE FOR

Standard or Dwarf Pear Trees.

A Large Stock of Full Grown Healthy Pear Trees at Low Rates. Address,

F. L. PERRY,
jan3 Canandaigua, New York.

THE

Gardener's Monthly

Book and Job,

PLAIN & FANCY

Printing Establishment.

We are now specially prepared to execute all kinds of **Type Printing** in the neatest and most modern styles. We have the largest collection (and are constantly adding to it) of **Fruit Plates** for *Catalogues*, of any office in the country, which we insert in Catalogues when desired *without extra charge.*

Our prices are moderate, and all work executed with dispatch and promptness.

We will cheerfully give estimates on any work which may be desired.

Address,
BRINCKLOE & MAROT,
23 N. Sixth St., Phila.

VERBENAS.

Stock plants in 70 leading sorts. Strong, healthy, and perfectly free from rust.

Per Hundred $6, per Thousand $50.

Also, strong plants of the new English bedding Violet,

VIOLA LUTEA GRANDIFLORA,
Each 50 cts, per doz., $4.50.

CENTAUREA CLEMENTEI,
New and beautiful, each $1.

COBÆA PENDULÆFLORA,
New, each $1.

Address,

A. B. WOODRUFF, Proprietor,

Or HENRY E. CHITTY, Superintendent,
"*BELLEVUE NURSERY*,"
nov3 Paterson, N. J

VICK'S FLORAL GUIDE FOR 1872.

THE First Edition of TWO HUNDRED THOUSAND copies just published. It is elegantly printed on fine tinted paper, in TWO COLORS, and illustrated with over **Three Hundred Engravings** of Flowers and Vegetables, and

TWO COLORED PLATES.

The most beautiful and instructive **Catalogue and Floral Guide** in the world—112 pages, giving thorough directions for the culture of Flowers and Vegetables, ornamenting grounds, making walks, &c.

A Christmas present for my customers, but forwarded to any who apply by mail, for TEN CENTS, only one quarter the cost.

Address, JAMES VICK,
dec 3 Rochester, N. Y.

Labels! Labels!

TREE, PLANT, AND BUNCH LABELS, GARDEN STAKES, &c

Made from the best quality of Pine Lumber, and acknowledged by all to be the best ever offered to the Trade.

PRICES:

No. 2 Tree Labels, notched for wire...	$ 50	per 100	
" 2½ Grape do " 2½ inch.....	40	do	
" 3 Pot do 3, 3½, 4, 4½ in. long...	60	do	
" 4 Bunch do 5 do	1 25	do	
" 5 Bale do 12 do 2 wide...	6 00	do	
Garden Stakes, 12 in. long 1½ in. wide.	3 00	do	
Round Greenhouse Rods, 2 feet long.	6 00	do	

Other lengths in proportion.

No. 3 Pot Labels 5, 5½, and 6 inches long at proportionate rates. Orders for

10,000 to 50,000, Nos. 1, 2, 2½, & 3, 10 per ct. disc'nt
50,000 or more, " " 15 "

Samples sent free. Send for a Circular. Address,

TREVOR & CO.,
sep Lockport, Niagara Co. N Y

A GREAT CHANCE FOR AGENTS.

Do you want an agency, *local or traveling*, with an opportunity to make $5 to $10 a day selling our new 7 strand *White Wire Clothes Lines? They last forever*; sample free, so there is no risk. Address at *once, Hudson River Wire Works*, cor Water St. and Malden Lane, N. Y or 16 Dearborn St., Chicago, Ill. sep12

Lacon Nursery Company.

Genuine Miner and Wild Goose Plums.
150,000 2 to 4 year APPLE TREES 3,000,000
OSAGE ORANGE HEDGE PLANTS. A General Assortment of Nursery Products, at extreme low prices. Address
Sep12 D. B. WIER, Lacon, Ill.

WEATHERED & CHEREVOY'S

PATENT BOILERS,

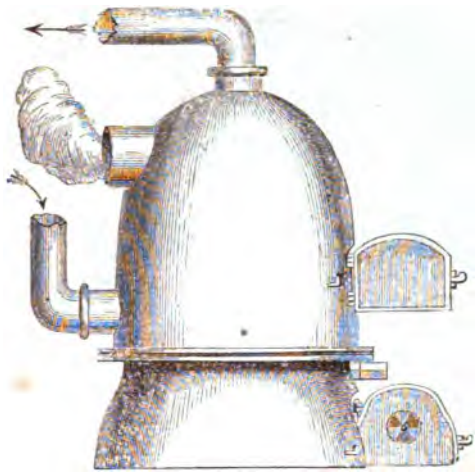


Fig 1.

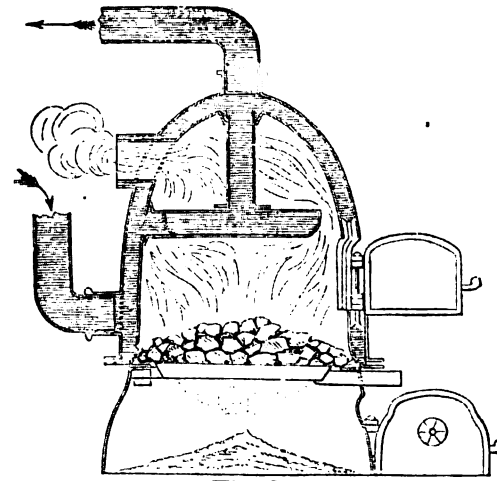


Fig 2.

AND IMPROVED

Hot Water Apparatus,

No. 46 MARION STREET, BETWEEN SPRING AND PRINCE, NEW YORK.

(TWO BLOCKS EAST OF BROADWAY.)

For Warming and Ventilating Public Buildings, Private Dwellings, Greenhouses, Graperies, Forcing Pits, Drying Rooms, and Heating Water for Public Baths.

Fig. 1 is an outside view. **Fig. 2** is a vertical section through the centre.

This Boiler is the most simple, the cheapest, most economical and powerful Boiler ever offered to the Public. It requires less attention; does not require cleaning to make it effective; draught is always good, there being no water-jacketed chambers to condense the smoke and choke up the flue.

The great reputation our Boilers have maintained for a number of years, together with our well known promptness, punctuality, and personal attention to business, warrant us in guaranteeing any work entrusted to us will be completed in a substantial and satisfactory manner.

The following are a few names of Gentlemen who have our Boiler in use:

Thos. Drake, Esq., Germantown, Pa.
Simon Cameron, Esq., Harrisburg, Pa.
J. D. Cameron, Esq., Harrisburg, Pa.
Thos. Carter, Esq., Raleigh, N. C.
J. H. Dunham, Esq., Chicago, Ill.
Jas. B. Waller, Esq., " "
W. J. Gordon, Esq., Cleveland, Ohio.
Geo. Stanley, Esq., Cleveland, Ohio.
Hiram Cranston, Esq., Stephentown, N. Y.
Geo. W. Cuyler, Esq., Palmyra, N. Y.
D. M. Osborn, Esq., Auburn, N. Y.
John B. Dutcher, Esq., Pawling, N. Y.
A. M. Allerton, Esq., Bronxville, N. Y.
George Merritt, Esq., Tarrytown, N. Y.
Peter Hoe, Esq., " "

R. M. Olyphant, Esq., Dobb's Ferry, N. Y.
S. D. Babcock, Esq., Riverdale, N. Y.
H. F. Spalding, Esq., Riverdale, N. Y.
Camille Marie, Esq., Inwood, N. Y.
Clarkson N. Potter, Esq., New Rochelle, N. Y.
F. H. Wolcott, Esq., Astoria, L. I.
E. Woolsey, Esq., Astoria, L. I.
William Chorlton, Esq., New Brighton, S. I.
Wm. Moller, Esq., No. 6 West 20th St., N. Y.
Geo. W. Lane, Esq., No. 8 West 29th St., N. Y.
Jas. Y. Smith, Esq., Providence, R. I.
Daniel W. Coit, Esq., Norwich, Conn.
E. W. Williams, Esq., " "
William Findlay, Esq., Newport, R. I.
William Kelley, Esq., Rhinebeck, N. Y.

WEATHERED & CHEREVOY

No. 46 Marion Street, New York.

FINE PLANTS OF

DAPHNE CNEORUM, 50 c. each, $25 per 100. **DAHLIAS. $12 per 100.**

Our Catalogues of choice Bulbs and Winter-flowering Plants sent on application. Also, general Catalogue of Fruit and Ornamental Plants and Shrubs. Send stamp and apply to above address. [sep12

OFFERS FOR THE SPRING OF 1872

the Largest and Best Selected Stock of

GARDEN & FLOWER SEEDS

In the Country; including all the Best

NOVELTIES IN SEEDS AND PLANTS.

Grass Seeds, Field Seeds, Evergreens, Plants, Roses, Dahlias, Verbenas, Gladiolus, Grape Vines, Small Fruits, Asparagus Roots, Early Potatoes, Onion Sets, Vegetable Seeds, Garden Requisites, Fancy Flowerpots, Vases, Rustic Work, Terra Cotta Ware, Books, Implements, &c. **Dreer's Garden Calendar for 1872,** containing full descriptive lists of the above, (144 pages,) *beautifully illustrated with engravings,* will be mailed on receipt of a postage stamp. Dealers supplied on liberal terms. A wholesale Catalogue (for dealers only) will be mailed on application. Address,

HENRY A. DREER,

714 Chestnut Street, Philada.

3 2044 103 119 24